The ghost and the machine

therapeutic intent in Bowen therapy

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“one flower opens, five petals appear”

Furukawa Taiko (1871-1968), cover calligraphy

Preface

The paper lying in front of you was written as the final paper to be written in the process of becoming a Bowen therapist.
I do realise that this particular paper probably is the odd one out amidst other papers written for the same purpose.
Obviously therapeutic intent is part of the equation in many forms of therapeutic intervention and Bowen therapy is no exception.
In this research though the Bowen therapy will function as the medium of choice in order to see if it's possible to measure the influence of therapeutic intent, not only simply because of the context of this paper but also because it's a form of bodywork that I really came to love over the past few years.
So where did this particular subject come from?
In the early nineties when I was studying to become a physiotherapist we did an experiment during one of the massage-therapy classes.
One of the students was lying prone on the table and the other was asked to lay one hand on the back of the student lying down, but before they would do so they decided to either lay down an insecure hand or a secure one.
Interestingly enough every receiving student was able to tell correctly which one of the two possibilities was the one they felt.
Later, during several Bowen classes, the statement was made that the impact of a move (I'll explain the Bowen move later in part 1) on the body was less during practice as opposed to during treatment.

Also there's a supposed difference of impact between a move for assessment and one that is given as a therapeutic intervention.
That made me wonder if the body could really distinguish between these types of moves and respond accordingly, or that it maybe was an idea that the teachers intuitively felt to be true, since mechanically you would say that the given impulse should be more or less the same.
In my view the difference between the aforementioned moves lies in the intention with which they are given.
Apparently the question about the possibility of the body responding differently according to given intent had been lingering in the back of my mind for some time because the moment a possibility of researching this arose it popped right back centre stage.
This possibility came in the form of a text-message I received from a client.
She told me that every time after she had received a Bowen session her pH level became more alkaline.
Apparently for some reason or another she measured her pH levels on a regular basis so for her too this consistent outcome was both surprising and intriguing.
I was intrigued too and at the same time saw an opening into a possible objective and fairly easy way of at least measuring if Bowen moves had impact on, in this case, pH levels.
Then I thought let's take it up a notch and see if it also would show a difference between intentional and non intentional moves.

So in this way I came to formulate the main question at the heart of this paper.
"**Is therapeutic intent an aiding factor during a Bowen therapy session and if so, is it possible to measure this effect using urinary pH levels?**"
With the underlying hypothesis here being " **Therapeutic intent is an aiding factor in the successful application of Bowen therapy"**
How I've set up this research will be discussed in part 4 of this paper.
Since I think that focused intent lies within the domain of mind and consciousness I thought of the title " the ghost and the machine" thereby paraphrasing the British philosopher Gilbert Ryle (1900 - 1976) who is principally known for his critique of Cartesian dualism for which he coined the phrase " the ghost in the machine".
By intentionally substituting the word "in" for "and" I'm referring to the possibility of transference of information without physical contact; a so called psi phenomenon that might be a part of the equation in this research.
The paper consists of 4 parts describing the three main elements in this research and the research itself.
Part one describes the Bowen therapy itself, how it is applied and possible explanations of how it works.
Part two is about the medium through which all remedial body work communicates namely the fascial network, a system that in my opinion links the Cartesian ghost and machine, making the distinction obsolete even and turning the deterministic view of the body as a machine into the holistic microcosmos we experience ourselves in.
Part three will explore consciousness, awareness, self awareness, mind, intent and information transference as researched in the fields biophysics and psi.
Part four is about the research itself, the set up, gathered data, outcome and discussion.

Before starting off I would like to thank a few people who assisted me in the process.
Hein van Dongen for directing me to literature regarding psi research, Fintan McDonagh for checking my grammar, Mirjam van Rijn for making the sessions schedule work, Pranayani Schuringa for asking the AlkaVitae® company to sponsor me with loads of litmus test strips(which they did), Marcel Dekker for added literature on intent and its influence and Karel Aerssens both for the article on cardiac energy exchange and making Bowned the wonderful and inspiring institute it is today.

Part one

The Bowen therapy

1.1 Definition

On the Bowen therapy worldwide forum Graham Pennington gave the following description giving a rather clear picture of it.
" The term Bowen therapy is commonly used to describe a number of interpretations of remedial body work that are based on the methods used by an informally trained Australian osteopath named Thomas Ambrose Bowen (1916-1982)
Bowen therapy is a complementary therapy in that all the interpretations seek to facilitate the body's natural capacity for self-regulation and healing.
These approaches are all similar in that they employ a unique form of soft tissue manipulation for the correction of mechanical and neural dysfunction.
Each of these approaches generates therapeutic input through its interpretation of the Bowen 'move'.

In Bowen therapy the term ‘move’ describes a process of tactile intervention that is specific in relation to various characteristics.
The typical ‘move’ is distinctive in that it is directed at a target tissue and involves some use of ‘skin slack’, ‘a challenge’ and has a specific direction.
Some interpretations of Bowen therapy employ standardised sequences of predetermined ‘moves’ to elicit a therapeutic response, while more complex interpretations apply individualised therapeutic intervention based on traditional osteopathic principles and on an observation and understanding of the relationship between structure and function”.

1.2 History

As mentioned in the description in the previous paragraph Mr.Bowen had no formal training in therapeutic body work.
He left school at grade 8 to work in labouring jobs.
During the 1950s he developed an interest in remedial body work after getting to know Ernie Saunders, a well known manual therapist at that time.
He started to develop his own technique and was able to refine his skills through his involvement with several local football clubs.
After initially having started to treat people mainly with lower back pain during the evenings his clientele steadily grew by word of mouth (he never advertised) and in 1959 he decided to quit his job in order to start working in his practice full time.His practice continued to grow to an astounding sixty five treatments per day in 1973 as he stated when he was interviewed by a parliamentary committee of enquiry into osteopathy, chiropractice and naturopathy.
During his years in practice he allowed six men to observe his work but he left no notes or educational material whatsoever about his methods.
"During the twenty-three years he was in practice, Bowen continued to research his approach to body work and to modify, test and develop his therapeutic techniques. As a result, the method he used was in a dynamic state, constantly changing and evolving" (Pennington, 2012, p. 7).
The six men who watched him at work did so in different periods of time during the aforementioned twenty three years.

Also they had different backgrounds, some were chiropractors, some osteopaths and one was a massage therapist.
The fact that these men assisted Bowen at differing timeframes and coming from various backgrounds makes it obvious why each one of them ended up with a different version of the work.
Since one of these individuals began to promote and teach his version of the technique widely while the others taught their interpretations just to a handful of practitioners, it is this version that is most well known in the world and indeed the starting point for most Bowen practitioners today. Nowadays there exists some kind of a Bowen industry in the sense that various styles of body work have emerged that clearly have their roots in this version of the technique.

1.3 General principles

Even though Bowen was a self taught therapist he used to call himself an osteopath (at that time it was a title not protected by law), in fact he joined the the Australian College of Osteopathy in 1972.

So I don't think it's a big leap to state that although Bowen's manual technique was unique he had an affinity with the profession of osteopathy on ideological and philosophical grounds.

The basic tenets of osteopathy may be summarised as:

1. The human body functions as an integrated, interrelated, whole unit.
2. Structure and function share a reciprocal relationship.
3. There exists in the human body an innate capacity for self-regulation and healing.
4. Therapeutic intervention is based upon an understanding of these three points.

(Pennington 2012, p13)

1.3.1 Holism vs reductionism

When the French philosopher, mathematician and scientist René Descartes (1596- 1650 AD) came to the conclusion that " the whole is the sum of its parts", he inspired the school of reductionism.
Reductionist thinking and methods form the basis of many of the well-developed topics of modern science including much of physics, chemistry and cell biology. And so it goes for the western, science based, medical approach as well.
This has brought us many breakthroughs and life saving procedures but also a fragmentation in medical care in the sense that different body parts or systems have their own specialists.
In the application of pharmaceuticals you can see reductionism as being combined with chemistry in the sense that the pharmacological intervention is based on an understanding of the disease process and targeted at impeding this process.
Here the focus of treatment seems to lie in managing the disease without taking into account that the body/mind continuum will always respond as a whole to any given impulse, leading to sometimes unforeseen side effects of treatment.
In this way the treatment of disease becomes more like managing the process itself and the drugs being used at the same time.
This brings me to the direct opposite of reductionism namely holism and the first osteopathic principle as mentioned before.
Some two thousand years before Descartes the Greek philosopher Aristotle (384- 322 BC) stated that " the whole is more than the sum of its parts"

This statement becomes more or less self evident when you look for instance at emerging properties of complex systems.
And since the body/mind continuum can be seen as a series of interlocked complex systems in a constant state of flux while reacting to both internal and external changes, whether subtle or dramatic, the holistic approach tries to take that into account both while assessing the client as well as during treatment.
Bowen therapy is a holistic approach to remedial body work in the sense that it takes into account the interrelatedness of different body areas and systems in order to develop an appropriate intervention.

1.3.2 structure and function share a reciprocal relationship

In the body it is quite easy to see that structure governs function.
When one studies the morphology of cells, tissues or organs for example you find that their specific structure perfectly fits the functions they need to perform (I do realise one can end up in a sort of chicken and the egg discussion here), like the actin/myosin filaments in muscle tissue or the structure of the temporomandibular joint just to name some examples.
The opposite also applies when a change in function leads to structural change as well.
This is part of the self regulating abilities of the body (the third basic principle mentioned under general principles).
It is mainly in response to changes in demands both inside and outside the organism.
Clear examples of this are the density in bone mass in a professional athlete, the lack of it in an astronaut returning after a several months in space or tissue changes in the heart and kidneys following long term hypertension.
Also the process of inflammation can be seen as adaptation in action.
Acknowledging this relation of function and structure is very important in the assessment of a client.

1.3.3 There exists in the human body an innate capacity for self-regulation and healing.

"The truth of this simple statement should be apparent. That it is an underlying principle in only a few schools of health care is surprising. Complementary medicine, by definition, seeks to join with the body in an attempt to make it whole or complete. Here we see physicians whose contribution to health care is to facilitate the innate healing and self-regulating capacity of the human being. The healer here is merely a facilitator of a natural process whose primary goal is to restore function to the body. If successful treatment is applied, function returns and the innate capacity for self-regulation and healing is restored". (Pennington, 2012, p22)

The last sentence of this quote I would formulate slightly differently since in my opinion this innate capacity itself doesn't need to be restored since it is always working but instead the healer tries to work together with it in order to bring the body back to a more optimal level of functional performance.

This holistic approach is aimed at restoring overall health in the client as opposed to the aforementioned managing of a specific process of disease.

1.3.4 Therapeutic intervention is based upon an understanding of these three points.

It is clear, after having discussed the other three basic foundational principles of osteopathy, that a therapeutic intervention flowing from these principles is holistic by nature.
And the Bowen therapy, in accordance with its originator, does exactly that.

1.4 assessing the client

Tom Bowen had a highly evolved ability to be able to "read" his clients in order to know which moves to use, both visual and tactile.
While this ability is most certainly a plus, there are many tests a therapist can use in order to form a basis for targeted treatment fairly quickly(combined with taking a thorough history). I will not go into detail here since different ways of assessing a client is outside the scope of this paper.
After that the therapist will use his or her highly developed sense of touch to gather information about temperature, muscle tone and tissue tension.
For a trained Bowen therapist the sense of touch remains one of the most important senses used in practice both for assessment prior to, reassessment after and what I would call micro-assessment during the Bowen move.
With practice you start to be able to "listen" with your fingertips to the client's body and how it responds to the soft manipulations during treatment.
Mr.Bowen himself placed great importance on heightened tactile sensitivity and on of his students, Romney Smeeton, recalls observing Bowen's morning ritual of warming the tips of his fingers with warm water in order to enhance their sensitivity (Pennington 2012, page 50).
These assessment strategies are used to establish a clear picture of the momentary status quo of the client's body/mind as a whole and not to get to a diagnosis, at least not in the medical sense of the word.
You just notice any functional disturbances and their possible relationships.
Assisting the body in resolving these disturbances clears the way for natural and powerful healing mechanisms to do their work more effectively.

1.5 the Bowen move

The core of the practical application of Bowen therapy lies in the use of the so called Bowen move.
The performance of a move consists of three phases, namely “skin slack”, “challenge” and “move” in current Bowen jargon.
By using either fingers or thumbs combined with very light pressure the therapist moves the skin in the opposite direction of the “move” phase; this is called the “skin slack”.
The skin is then held in place and light pressure is added but now directed into the body; this is the “challenge” phase.
The “challenge” is then followed, usually on the clients out-breath, by a rolling type of motion over the targeted tissue underneath; this is the “move” phase.
Both the “skin slack” and the “move” are made transversely to the direction of the underlying tissue fibres.
The structures targeted during Bowen therapy are:

* Muscles
* Tendons
* Fascia
* Ligaments
* Joints
* Nerves

One can argue of course that except for fascia all the other mentioned structures cannot be touched directly but always through a layer of fascia.

1.6 possible explanations of it's working

For most clients that come into the practice it's not that important to know exactly how the therapy works as long as it works.
But ever since Bowen came up with his highly effective soft tissue "moves" the question naturally arose as to how it worked in the body.
At the moment there are a few theories about that but all explanations share two important systems in the body namely the nervous system and the fascia tissue.
During a Bowen move there are several moments in which a clear impulse is given to both of them.
In the first part of the move the light stretching of the skin stimulates receptors in the skin, the second part where light pressure is given will stimulate sensory nerve endings both in the skin and deeper layers and the third part of the move stimulates nerve endings responding to both pressure and stretching forces; these are the ones informing the central nervous system about the current state of tissues in the body in a process called proprioception.
Proprioceptive information is processed by the central nervous system followed by an adjustment in tonus of skeletal motor units leading to a palpable tissue response.
On the other hand it's the autonomic nervous system that also plays its part in responding to our Bowen move.

It appears that by stimulating body tissues by means of a typical Bowen move the receptors and endings being triggered mainly are the so called interstitial receptors and the Ruffini endings. By stimulating both interstitial receptors and Ruffini nerve endings the responding autonomic nervous system can change the global bodily muscle tone through hypothalamic tuning while at the same time influencing local fluid dynamics and viscosity in the ground-substance (extra cellular matrix) as well as lowering the tonus of intrafascial smooth muscle cells (Bowned, 2016).

Other current theories are the stress-release theory, the piezo-effect, the soliton wave and the meridian theory.

The stress-release theory: emotional, mental and/or physical trauma will lead to a misbalanced autonomic nervous system which impairs the body's healing abilities.

Bowen therapy according to this view reduces this stress response by balancing sympathetic and parasympathetic activity.

The piezo effect theory states that the effect the Bowen therapy has on the body can be subscribed to the small electrical currents the moves induce in the fascial tissues which in itself has piezoelectric properties.

These currents have a beneficial effect on body physiology both locally, as in a drop of local tension, and globally, as in local changes breaking an ongoing cycle of disturbance for instance.

The Soliton wave theory: the soliton wave was first described in 1834 by John Scott Russel (1808-1882) who observed a solitary wave in the Union Canal in Scotland.

It is a wave form that can hold its form and strength even when passing through different materials.
In modern day science these waves pop up in diverse areas of scientific inquiry including biology.
According to James Oschman such a wave can take in an electrical charge and transport it without any need for extra impulse or energy thereby mimicking a super conductor. It is known that signals can travel through fascia at the speed of sound in water (many times faster than the fastest nerves) so maybe the impulse of a move can travel like a sound wave through the body undisturbed by different tissues that will be in its pathway.
Meridian theory: Several Bowen moves are made at points that are known in traditional Chinese medicine, the so called acupuncture points and fascinatingly enough you can see a correlation between them in terms of indication of use.
So along the line of Chinese medical theory the Bowen move is supposed to influence the flow of energy in these points and their corresponding meridians.

Part two

The fascial network

2.1 A short intro

For many centuries the fascia has been neglected by anatomists in their studies of the human body.
When performing their dissections this tissue, which was considered some sort of filling material, was cut out and thrown into the bin in order to reveal the more interesting structures like organs, vessels and nerves.
Till the beginning of the last century there was hardly any description of it in the medical science literature.
One of the reasons might be that this tissue is so pervasive and interconnected that it can easily frustrate the common ambition of researchers to divide it into a discrete number of subunits which can be classified and separately described.

2.2 What is fascia?

Fascia is the soft tissue of the connective tissues in the body meaning that all fascia is connective tissue but not vice versa: bone, blood, lymph and fat are considered connective tissue but not fascia.
It has different qualities in function and structure depending on both local and regional demand.
"In the tendons and ligaments its tensile strength is superior to steel wire; in the cornea of the eye it is as transparent as glass; it accounts for the toughness of leather, the tenacity of glue, the viscosity of gelatin. Invest it to various degrees with hyaline, a nylon-like substance exuded by chondro-blasts and it becomes the various grades of cartilage; invest it with mineral salts and it becomes bone" (Juhan, 2003, p63).

2.3 functional morphology

Since it is beyond the scope of this paper I won't go into to much detail here other than giving a basic idea of structure and function of this fascinating tissue (yes, without a doubt like many students before me, the word 'fascianating' entered also my vocabulary).
The fascia pervades the body like a living weblike matrix wrapped around organs, blood-vessels, the lymphatic vessels and glands, nerves, bones (periost is a layer of fascia) and muscles (both outside as the epimysium, which spreads out to adjoining muscle, as the perimysium inside dividing muscle into fibre bundles and as the endomysium connecting and separating individual muscle fibres and fibrils). It forms the joint capsules, ligaments and tendons as well.
The pericardium is fascial tissue, there is a layer of fascia around the smooth muscles of both the respiratory and digestive systems, and the skin, in particular the dermis and hypodermis are fascia.
Apart from this obvious connecting structure it is also separating structures by forming sheets between them allowing them to glide alongside each other as with the internal organs, so that in this way they can move separately from each other even though they are packed together.
The aforementioned weblike structure creates the space that forms the so called extra cellular matrix which is filled with the ground substance, a viscous fluid that plays multiple roles in the body everywhere there is connective tissue, meaning that it surrounds all cells in the body.

It’s not to be confused with other intercellular fluids diffusing from the blood vessels to the cells and metabolic wastes from cell activity diffusing back to the capillaries and the lymph vessels.

“ The ground substance…is the liquid medium through which these other fluid exchanges take place. It is the retort in which all extracellular activities occur. It does not come from the capillaries or from other tissues , but is produced by cells which are among the earliest specialised cells to emerge from the embryonic mesoderm, the fibroblasts” (Juhan, 2003, p.64).

In some parts of the body it is in a viscid gel like state whereas in other parts it is in a more fluid sol state depending on the amount and structure of water binding protein/carbohydrate combinations present.

“Healthy ground substance works constantly to help maintain a supportive chemical and physical equilibrium between all the body’s tissues” (Juhan, 2003, p.65).

The fibroblasts that produce this ground substance also produce, amongst other substances, the building blocks for collagen fibres.

The tropocollagen molecules formed in the fibroblast seem to have been particularly designed to weave netting and cable.

They consist of amino acids linked together in a particular order to create a spiral structure.

When these spirals, or helixes, come into contact with each other they begin to spiral around one another in groups of three until they form a compact triple helix just like a three-stranded rope.

These pieces of “protein rope” are reinforced, glued together by hydrogen molecules, thereby creating the collagen molecule.
As individual molecules line up and attach to one another they create the collagen fibril which is stronger in tensile strength than steel wire requiring a load of ten thousand times its own weight to stretch it.
It is this fine cable like structure that forms the basic building block to create and weave the various structures of the connective tissues.
The fascial network reaches from the back of our skin all the way down into the cells to form the cytoskeleton filling every nook and cranny of our bodies, giving it form and providing the tensile strength, flexibility and ways of force transmission in order to move around freely in this world.
Where in the past force transmission in the body mainly was explained by functions of levers and joints, nowadays more and more it is clear that it can be more realistically described by means of biotensegrity.
Biotensegrity is a shortening of biological tensile integrity. It refers to a type of tensional, three dimensional living structure that is formed under tension and compression.
It is a term coined by Dr. Steven Levin in 1981 as a biologic model that can appropriately model organisms from viruses to vertebrates including their inner systems and subsystems.
“ Biotensegrity reverses the centuries old concept that the skeleton is the frame upon which the soft tissues is draped, and replaces it with an integrated fascial fabric with “floating” compression elements (bones in vertebrates), enmeshed within the interstices of the tensioned elements” (Schleip et al, 2012, p. 137)

2.4 Fascia as a body wide communicating system

The morphology as described in paragraph 2.3 might suggest that the fascial network is mainly an inert connecting system either through the tensional network or the fluid in the extra cellular matrix.
Well, I guess it will come as not such a big surprise by now that the fascia has a sensory architecture, in fact it can be seen as potentially one of our richest sense organs with an overall surface area by far surpassing the skin or any other body tissue.
The Fascial network is infused with many different types of sensory receptors, not only in areas of force transfer from muscle to connective tissue like the myelinated proprioceptive Golgi, Paccini, and Ruffini endings but also a myriad of tiny unmyelinated free nerve endings almost everywhere in the fascial tissues meaning that for the sensorial relationship with our bodies, whether it consists of pure proprioception (knowing your position in space and providing the right muscle tone to hold that position, move around and act upon objects), nociception (pain signals) or visceral interoception (being aware of your inner space); the fascia provides definitely our most important perceptual organ (Schleip et al, 2012).
So far we have seen that the fascia can communicate both mechanically and neurologically through its tensional network and the sensory receptors it contains.

But the fascia has even more ways of transporting information throughout the body.
The other components of connective tissue communication are chemical, electrical and energetic.
The chemical part of communication is more or less indirect in the sense that the interstitial fluid and its flow is an important driving force to enable biochemical communication throughout the body. Here you can think of the interaction of amino acids, carbohydrates and fatty acids with their hormonal, neuronal, immunological, reparative and growth properties, and functions (Schleip et al, 2012).
The foundation of both electrical and energetic information transference lies in two structural properties of the connective tissue: the fact that it is a liquid crystalline structure and the presence of bound water.
In our modern day society we use liquid crystals on a daily basis as they perform their duties in computer displays, tv screens and household detergents.
Back in high school during chemistry class we learned about the phases of matter like for instance ice (solid), water (liquid) and damp (gas) in the case of H2O.
The liquid crystalline phase is a phase of matter in between the solid and the liquid.
Unlike liquids, where molecules move freely around, liquid crystals have an order of orientation, meaning that the molecules are aligned in a common direction, more like a crystal.

But since this state is not a pure solid one the liquid crystal is still flexible, malleable and responsive.

"Liquid crystals typically undergo rapid changes in orientation or phase transition when exposed to electric (and magnetic) fields (which is why they are useful as display screens), or to changes in temperature, pressure, PH, hydration, and concentrations of inorganic ions" (Ho, 2008, p216).

Studies have revealed that the connective tissue- intracellular matrix continuum has dielectric and electrical conductive properties and that these properties depend to a large extent on the bound water molecules in and around the triple helix.

It makes this continuum very sensitive to mechanical pressures, ionic composition as well as electromagnetic fields and radiation. That slowly but surely more people become hyper sensitive in our radiation infused society comes as no surprise but that's another topic to write a whole new paper about.

As for the water: there appear to be three groups of water molecules in contact with the collagen fibres of connective tissue.

1. Water tightly bound within the triple helix of the collagen molecules (see paragraph 2.3)
2. Water bound to the surface of the triple helix like a more loosely structured water cylinder or bound to matrix molecules (proteoglycans, glycoproteins, glycosaminoglycans).
3. Free water filling the spaces between the fibres and fibrils.

In this way there exists an ordered network of water molecules, connected by hydrogen bonds and spread out throughout the collagen matrix.
This configuration of bound water and long chains of aligned collagen make it possible for positive electrical charges to move up and down these water chains in a process called proton jump conduction.
It is called jump conduction because unlike an electrical current in a wire where electrons move throughout the length of the wire, here the positive proton charge is passed on from one dipole water molecule to the next like a sort of relay race resulting in a much faster transmission than with the actual moving of electrons.
It is also much faster than the conduction of electrical signals by the nerves.
In this way the connective tissue- intracellular matrix continuum has a body wide intercommunication system that is much better than can be provided by the nervous system alone.
" That is why lower animals that do not have a nervous system are nonetheless sensitive and responsive. Watch how a hydra or a sea anemone contracts its entire body when one of its tentacles is touched. At the other end of the evolutionary scale, note the alarming speed with which a hypersensitive response occurs in human beings. There is no doubt that a body consciousness exists prior to the 'brain' consciousness associated with the nervous system" (Ho, 2008, p236).

This means that the brain consciousness is a ‘newer’ system phylogenetically and as such embedded in body consciousness but I think we can safely assume that both systems mutually inform and condition each other working in complete coherence under normal circumstances.
Body consciousness has sentience, intercommunication and memory distributed throughout the entire liquid crystalline matrix that connects every single cel to every other (Ho, 2008).
This combination and coherent unity of body-brain consciousness gives us the everyday experiences we al take for granted namely the experience of ourselves as a unity.
According to Mae wan Ho the unity of experience depends on a complete quantum coherence of brain and body.
“ It is quantum experience that enables us to perceive (and bind) the world we experience into a meaningful whole, and not a random collection of separate sensory inputs” (Ho, 2008, p240).
This raises the question of whether there also exists a form of quantum coherence between the body-mind continuum, its surroundings and ultimately the whole universe.

Part three

The machine in the ghost?

3.1 exploring the terrain

In this last section of the theoretical part of this paper I'll focus more on the subject of intent in relation to its possible effects on the body-mind continuum in the context of the question lying at the heart of this paper.
In doing so I'll use three angles of approach.

* Research in the effect of different field phenomena on biological tissue behaviour, a further exploration of part two.
* Research in so called psi phenomena as being done in the field of parapsychology
* personal experience but more as anecdotical notes.

3.1.1 about intent and other forms of consciousness

I think that in order to use the word intent in the remainder of this paper we need to clarify what is meant by it or at least give a close approximation.
Other terms that need to be clear in this context are:

* consciousness
* awareness
* self consciousness
* mind

The following explanations of the terms are mainly my own ideas in the matter (the bottom line being that nobody really knows what consciousness really is), even though ideas are of course never purely original being fed by a lifetime of exploring and experiencing life itself. So my humble apologies dear reader if you come to the conclusion that my writing starts to become somewhat nonsensical.
I also do realise some of my basic assumptions are a no go area for the mainstream mechanistic materialistic scientific worldview where everything is essentially mechanical and organisms are more like complex machines while human consciousness is an illusion produced by the material activities of the brain.
In this exploration I leave all kinds of altered states of consciousness for what they are in order not to make the terrain too vast. I realise that while writing this paper I need to restrain myself here and there because there are just so many fascinating details and angles to explore!
So that being said, let’s begin.

Even though it is an everyday life experience the question about what consciousness actually is remains a mystery to this day, but during the last few decades the study of consciousness has become a real science and there is now a better understanding about the conditions under which systems can be conscious (albeit still rooted in the viewpoint of materialism).
Personally I believe consciousness to be a basic constituent of reality itself, a bit like in the more archaic views of panpsychism.
By this I do not mean to say that simpler systems have thoughts, feelings or any other mental capacities but that consciousness is there as a sort of protoconsciousness.
Being sort of dormant in the elements of the universe, it is in the biosphere that it can start to emerge in more complex forms as awareness, self consciousness and mind (some research suggests that particles on the quantum level of reality make decisions as well but here we cannot be certain if these decisions are autonomous or caused by entanglement with the researcher as in the observer effect).
Awareness is when consciousness starts to have a basic experience as an entity, being able to respond to its surroundings.
I used the word experience here because otherwise you could say that an electrical eye that is used to automatically switch on the light once you enter a room has awareness because it responds to movement (I think experience is therefore essential in the argument whether or not artificial intelligence has consciousness).
It is the kind of body responsiveness as described in paragraph 2.4.

It is hard to tell where to draw the line between awareness and self awareness.
I guess it depends on the level of abstraction you want to apply.
The ‘lower’ animals described in paragraph 2.4 are sensitive and responsive. They actively seek out a mate and flee from possible threatening situations so in that sense you could say there is a basic sense of self and other.
When organisms become more complex so does the awareness, experience and expression of self awareness.
The organism starts to have more individual patterns of behaviour and the presence and expression of various neuropeptides give rise to the expression of emotions as described by Candace Pert in her book ‘Molecules of Emotion’.
I am not sure if organisms without a nervous system express emotions since I didn’t look into that.
When the nervous system becomes more intricate higher cognitive functions arise like long range planning, problem solving but also visual recognition of self, meta cognition (knowing one’s mind) and empathy. All these attributes have been demonstrated in primates, rodents and other orders (Tononi, 2015).
Actually, ravens, crows, magpies, parrots and other birds, tuna, coelacanths and other fish, octopuses and other cephalopods, bees and other members of the vast class of insects are all capable of sophisticated, learnt, non-stereotyped behaviours that we associate with consciousness if carried out by people (Tononi, 2015).

All these types of behaviour can have the element of intent in them, as in acting in order to provoke an expected outcome either inside the body or in the environment.
If there is clear intentionality behind a given action other than sheer reflex you could say there is a presence of mind directing the intent and experiencing the situation as a whole within the context of the organism's personal history.
Mind then I would say is a stage of abstraction where the initial stages of self awareness have evolved into a clear individual presence which is aware of its own existence in relation to the environment and its own history, preferences, agenda, social interactions or in other words you could call it the egoic space of awareness or mind.
In one Buddhist theory of mind it is this ego mind that arises moment to moment from the depth of original consciousness, like a micro-genesis of the whole personal storyline in every moment where one moment inspires the next and in that way an appearance of an unbroken storyline is created.
It is the mind that is capable of intentional focussed concentration (and many other faculties but that would lead us way beyond the topic of this paper).

3.2 signal amplification in biophysical systems

In paragraph 2.4 I mainly described the ways of internal communication with a short reference to sensitivity to electromagnetic fields but ended it with the question if there might exist a form of quantum coherence between the body-mind continuum and its surroundings. There are definitely signals that this actually might be the case, in the sense that quantum coherence and entanglement can offer an explanation for the otherwise "para" normal feats we'll describe in the next two paragraphs of this chapter.
Apart from entanglement and coherence there appears to be another element in the equation as biologists have repeatedly documented great sensitivity in organisms to exceedingly tiny signals in their environment. Extreme examples of energy sensitivity have been discovered for virtually all living living systems at all levels of organisation: bacteria, algae, higher plants, protozoa, flatworms, insects through fish and birds all the way up to humans (Oschman 2016).
Actually research into this sensitivity revealed that living systems respond differently to stimuli than other forms of matter. In living systems extremely weak fields may have potent effects, while there may be little or no response to strong fields.
Apparently there are biophysical mechanisms that can amplify tiny signals to produce significant physiological effects.
The molecular 'sensors' that can pick up these tiny signals are in fact highly ordered arrays of molecules that can be found throughout living tissues. They are electrically polarised and probable components of the sensing system.

In general, organisms are poised to respond to minute whispers in the electromagnetic environment (Oschman, 2016). In biological systems this environment is very noisy due to the vast amount of processes involving electrical pulses with electromagnetic effects happening all the time.
A very interesting article someone brought to my attention in relation to this and the influence of intent described a research in the detection and measurement of cardiac energy exchange between people.
They specifically used cardiac energy as their subject for two important reasons. First of all the heart generates the strongest electromagnetic field produced by the body (measurable a number of feet away from the body) and second they had shown in another study already that the inner emotional state of a person directly affects the coherence in the electromagnetic field generated by the heart and that sincere feelings of appreciation, love, or care produce increased coherence in the cardiac field (McCraty et al, 1998).
"Recent research now has established that the noise in biological systems can actually help in the detection of weak periodic signals via a mechanism known as stochastic resonance. In essence, stochastic resonance is a nonlinear cooperative effect in which a weak, normally sub-threshold periodic (coherent) stimulus entrains ambient noise, resulting in the periodic signal becoming greatly enhanced and able to produce large scale effects.

The signature of stochastic resonance is that the signal-to-noise ratio in the system rises to a maximum at some optimal noise intensity, corresponding to the maximum cooperation between the signal and the noise. Essentially, the noise acts to boost the sub-threshold signal to a level above the threshold value, enabling it to generate measurable effects. Stochastic resonance is now known to occur in a wide range of systems, including sensory transduction, neural signal processing and oscillating chemical reactions, and is firmly established as a valid and far more general phenomenon than previously thought”(McCraty et al,1998).

3.3 intent in psi research

“The term psi was coined as a neutral term for psychic phenomena in 1942 by British psychologist Robert Thouless. It refers to the 23rd letter of the Greek alphabet and is pronounced “ sigh”. Psi is also the first letter of the Greek word psyche, meaning soul or mind. Thouless chose this term as a way to refer to psychic experience without implying origins or mechanisms. Common psi experiences include mind-to-mind connections (telepathy), perceiving future events (precognition), and mind-matter interactions (psychokinesis). Psi may also be involved in intuitive hunches, gut feelings, distant healing, the power of intention, and the sense of being stared at” (Radin, 2006, p6).
Psi research is mainly done in a laboratory setting and can be divided into two main subjects.
Research to test whether information can be perceived without the use of the ordinary senses and research to test the effects of mental influence at a distance.
It’s good to consider how these effects can be researched scientifically and therefore what science is able to study.
Scientific models are exceptionally good at measuring and modelling the observable world, from atoms to stars and from bacteria to human behaviour. In order to make sure that what is studied is real and not coincidence or a perceptual bias, science turns to controlled laboratory experiments.

“Lab studies don’t explore the raw, messy, everyday world at large. They investigate, usually with tight controls, artificially constrained versions of the real world” (Radin, 2013,p120).

Even though Rupert Sheldrake did some interesting experiments “in the wild” on the sense of being stared at and precognition, most psi oriented experiments are meticulously constructed with very tight controls, even more so because on average any experiment in that direction is being frowned upon in the science community (by that I most certainly do not mean that Rupert Sheldrake did a bad job).

One of the types of sessions I used during the research uses pure intent without touching the participant so in the context of this paper our interest lies in the second type of research where information is flowing out from the mind to the environment to various effects.

This type of research again can be divided in different categories: the mind of the sender influences the mind of a human receiver, the mind of the sender influences living matter and the mind of the receiver influences non living matter.

The influence of the mind on the body of the same person is very well known due to the many researches being done to test new pharmaceuticals against the placebo effect and where, much to the frustration of the researchers, during many trials the placebo effect appears to be as effective or more than the tested drug.

Other dramatic effects can be seen when the participant is in a state of hypnosis. "When I was studying at Cambridge, one of our physiology lecturers, Fergus Campbell, gave a demonstration of the powers of hypnosis using one of my fellow students as a subject. Campbell told the subject that he was carrying out a scientific experiment on the response of skin to heat, and would be touching the subject's arm with a lighted cigarette. In fact he touched it with the flat end of a pencil. Soon afterwards, the skin reddened and a blister appeared where the cool pencil had touched. I later learned that many other hypnotists had shown the same thing, and that it had been studied, but not explained, by medical researchers" (Sheldrake, 2013, p275).

The influence of the mind of a sender on the body of a receiver is studied by focussing on different aspects of the body, for instance influence on the autonomic nervous system or the central nervous system.

Psi effects in the autonomic nervous system belong to the class of studies known by the acronym DMILS which stands for " direct mental interaction with living systems".

A typical DMILS study , according to Dean Radin, would go as follows.
When the sender (Jack) and the receiver (Jill) arrive at the laboratory, the experimenter escorts Jill to a solid steel, double walled chamber shielded against electromagnetic signals and acoustic noise. Such rooms are used to make sure that no ordinary forces or signals can reach Jill once the door is closed. On the inside this room is very comfortable and pleasant to be in. Jill is then asked to sit in a comfortable reclining chair while the experimenter wires her up to a monitor that measures changes in the activity of her sweat glands/ skin conductivity, a convenient way to register changes in Jill's emotional state.
Once wired up, Jill is asked to simply relax for about 30 minutes while being monitored continuously.
Her only task is not to fall asleep and to try to maintain a mental connection with Jack. Jill knows that Jack will be thinking about her from a distant location but not when, or how long, or the type of thoughts he will be directing towards her.
When the experimenter has made sure that Jill's skin conductance data are being recorded properly, the entrance door to her room is closed (these chambers are designed to create a tight electrical seal, so closing the door is like sealing the hatch on a space craft).
Jack is now placed in another, distant and soundproofed room and asked to sit in front of a video monitor and follow the instructions that pop up on the screen.
The computer in another room that is controlling the experiment waits a few minutes and then decides, based on the equivalent of a coin toss, if it should instruct Jack to 'calm' Jill or to 'activate' her.

If it decides that Jack should calm Jill, the word " calm" pops up on the screen instructing Jack to imagine Jill in a calm and relaxing setting, like taking a nap on the beach. If he was trying to activate her he might imagine her running or skydiving. When the pop up instruction disappears, in around 20 seconds or so, Jack withdraws his attention from Jill and the computer starts a timer to wait for the next trial. Over the course of 30 minutes the computer might be programmed to present a total of 20 calm and 20 activate instructions in a random order. In some set ups Jack can watch the record of Jill's ongoing skin conductance changes that he then can use to adjust his mental sending strategy. After the experiment is done, the investigator takes the full 30 minutes record of Jill's skin conductance data and separates it into two subsets: the periods where Jack was sending calming thoughts vs the periods where he was sending activating thoughts. If it turned out that when Jack was thinking calming thoughts Jill showed lower skin conductance activity and vice versa, and if this relationship would persist over the course of many test sessions, then the experiment would have demonstrated an unconscious psi connection between Jack and Jill.

A variation of the DMILS experiment is the use of remote staring, where Jack is able to see Jill over a closed circuit TV monitor at randomly selected times and when this happens he intently stares at her, aiming to activate her nervous system.

In 2004 psychologist Stefan Schmidt and his colleagues from the University of Freiburg hospital, Germany, published a meta-analysis of these two types of experiments in the British journal of psychology. They found 40 DMILS studies reporting 1055 individual sessions conducted between 1977 and 2000.
The overall results were significant with odds against chance of 1000 to 1, so coincidence is not a viable explanation. No significant relationship was found between experimental quality and the resulting outcomes, so the results were not due to flaws in the experiment (Radin, 2006, p134).
So there are studies suggesting that the intention of one person can influence responses in the body of another person.
If you are interested in more information about these studies on DMILS or other psi phenomena I refer to the books written by Dean Radin, who comes up with a stunning amount of data proving the existence of psi phenomena.
For me, in the context of my research, it was important to see if there were any studies done about intent influencing the body and/or mind of another person because personal experience alone would not be enough to back up a research paper, right?

3.3.1 close encounters

In the introduction I told you about the fact that I and fellow students were able to tell whether the hand laid down on our backs was either secure or insecure but there are some other moments where I was confronted with the power of intent worth mentioning.
I think most Bowen therapists reading this have heard of or experimented with surrogate Bowen or distance Bowen.
For the readers who haven't heard about these phenomena, let me just quickly explain.
Sometimes when it is for some reason not possible to touch a client you can apparently treat them indirectly by treating a 'surrogate'. This other person receives the treatment while at the same time your client touches him or her. The impulses of the moves are transferred to your client this way. This might have something to do with signal amplification which I will explain in the next paragraph. Personally I haven't tried this one yet.
I did try distance Bowen a few times and with success.
As the name suggests in this case the client is somewhere else entirely so the session is about directing pure intent.
Technically I do not consider this to be a Bowen session (see paragraph 1.1), but here, in my opinion, the experience of treating someone with the Bowen moves is used as a mental anchor and focus point in order to direct intention towards a distant client.

Apparently the physical distance did not really matter as I did one session with the client being in the same town and another with me being in the Netherlands and my client being in Spain.
In short the procedure I used was as follows; first I asked permission to do this type of treatment so they would be open for incoming information and making a connection, then I asked them to lay down on their back comfortably and enjoy the ride until I would send them a text message telling them to sit up and end the session. When I was sure they were lying down and relaxing, I prepared myself by picturing the client and in this way connecting with them. With the connection established I then decided which moves I was going to use before entering in a state of 'pure action', meaning just doing the premeditated moves without any other thoughts other than the mental image of the relaxing client.
A rather more spectacular experience I had was when I was assessed by a Chinese master of a form of so called 'nei gong' - these are practices in controlling and directing energies in and around the adept's body.
This man used his energy to 'scan' his clients for irregularities in energy circulation which he could then treat with the use of his energy, medicinal herbs or cupping (a treatment where cups of glass or plastic are placed mostly on the back, after which the air is sucked out of them creating a vacuum that has a strong pull on the skin and underlying tissues).

At one point I was asked to bend over and with his hand about 20 cm away from my sacrum (I know this because there were some other people being assessed in this way before me), he pushed his energy along my spine.
I didn’t feel anything at all but hearing the response of the people watching apparently something significant did happen. When afterwards I saw the pictures my friend made I was amazed because you could clearly see that along my spine there were red stripes in a sort of lightning pattern. So here for me it was quite clear the master had influenced my tissues with pure intent. Apart from this stunning outcome he was also able to tell me that there was something going on with my right knee but that it didn’t need treatment at that time, which was a correct assessment because some months before I had a minor surgery on my knee cap which was recovering nicely so it was clear that the creation of reddened patterns (following mainly a specific meridian as an acupuncturist later told me when I showed him the pictures) in the skin wasn’t just a party trick.
That’s why personally I have no doubts whether it is possible to influence the body by using intent and reading various works on this and other psi phenomena only strengthened this notion.
But as to how these things are accomplished we are still more or less in the dark in the sense of there not being an undisputed scientific theory describing the underlying processes that is, because obviously the people from traditions working with these phenomena(healers, shamans, yogis, mystics etc.) have their own theories based on millennia of empirical knowledge.

Probably the main reason for the absence of a scientific consensus on the matter is the fact that generally speaking of these phenomena in scientific circles is taboo let alone trying to organise research into the matter which would imply an acknowledgement of the existence of psi in the first place and that is a no go area.

The problem for the scientific community now lies in the fact that by now there is empirical evidence that cannot be simply dismissed.

"Laboratory data amassed over many decades suggest that some of what yogis, mystics, saints, and shamans have claimed is probably right. And that means some of today's scientific assumptions are probably wrong" (Radin, 2013, p5).

The aforementioned data is probably not as spectacular as the feats being displayed by yogis, shamans, mystics and the like since these individuals are more like the olympic athletes of psi, so to speak. The point is that once it is clear psi exists then just maybe science can start looking into how these phenomena come about, probably leading to new and fascinating applications in the future.

Interestingly enough, since the beginning of quantum physics and with the progression of ever more sophisticated measuring tools, science has been confronted regularly with conclusions that rattled its beliefs as to what reality is and how it works so by now you'd expect more openness into the matter especially since some elements of quantum physics seem to mimic psi effects.

I do realise one cannot just jump to conclusions and it is not sure if you can extrapolate these effects directly from the quantum level into every day reality, but it does mean that by now according to quantum theory things like action at a distance is not theoretically impossible.

With the rise of quantum theory, classical reductionism and determinism endured some heavy blows as the new view on reality is truly holistic in nature thereby challenging the basic approach of how science understands and therefore studies the world. Studying individual pieces will give an incomplete picture or as Dean Radin puts it " it's like studying atoms inside an acorn in an attempt to understand the emergence of leaves on an oak tree- a futile exercise".

I consider myself to be a proponent of a more inclusive approach, both zooming in and out, using best of both views.

One thing is clear though; the rabbit hole is much deeper than expected, revealing an evermore magical and mysterious reality in which consciousness expresses itself.

Part four

putting things to the test

4.1 The set up

In order to answer the question I posed in the beginning, namely "**Is therapeutic intent an aiding factor during a Bowen therapy session and if so, is it possible to measure this effect using urinary pH levels?**", I came up with the following set up.
I had a total of ten participants between age 27 and 47.
I divided them into two groups of five, one group I called "touch" group, the other one "non touch" group.
When I asked them if they wanted to participate I didn't tell them the study was going to be focused on the use of intent in order to avoid placebo bias so instead I told them the research was about whether it would be possible through the use of Bowen to influence urinary pH levels.
I told the non touch group they were the control group in order to see if coming to the practice and relaxing for some 20 minutes on the treatment table could also make a difference.

Then each participant would receive 6 sessions, three being with intention and three without.
In this way the overall study contained four types of sessions:

* touch with intention
* touch without intention
* non touch with intention
* non touch without intention

For the basic structure of each type of session I used the BRM's, which is Bowen jargon for basic relaxation moves but in a slightly more compacted way, meaning fewer breaks in between. I did lower back moves 1/4 directly followed by upper back 1/4 then break, then 5/8 lower directly followed by upper 5/8, break, 9/10 and 9/10, break, mid-back, break, turn over, hit the lats plus neck 1/4, break, neck 5/6.
For readers not familiar with the Bowen therapy, I just described the session here for the sake of completeness so don't let these terms and numbers distract you in any way.
By dividing the group into touch and non touch I made sure that for them each session would feel the same.
For each participant I had a small envelope containing six pieces of paper with either "intent" or "non intent" written on them.
Just before the start of each session I would draw a piece of paper from the envelope of the person receiving the session to see what type of session it was going to be in order to prevent myself from deciding beforehand what I was going to do. After I read the piece of paper I would then write the session number on it so it could be coupled with the data I would receive at the end of the series of sessions.

When this small paperwork was done I would let the participant in and let them lie down on the treatment table, starting off lying prone and covered with two towels.
During these sessions the participants were wearing comfortable clothes as I wasn't treating any specific problems here.
Depending on whether it would be an intent or non intent session I would proceed as follows.
For the touch group an "intent" session would mean that I proceeded like a normal session as in doing the moves with my full intention, with the participant both feeling the response of the tissues my hands were touching and being focused on their well being- the difference with a normal session being that the used moves then would be more tailored to the needs of the client.
A "non intent" touch session would mean that I still did the moves but now disturbing the normal therapeutic stream of intention by putting my point of focus behind my back and in the upper corner of the room while at the same time distracting the reasoning part of my mind by reciting and improvising various Indian rhythms using the rhythmic language used in carnatic music called konnakol.
For the non touch group an "intent" session would mean that I would open the towel just like I would do with a regular session and then by using experience as a mental anchor for intent and focus I would perform the moves above the participant and then close the towel for the break, so in this way the session would consist of pure intent.
A "non intent" session would mean that I would only open and close the towel and do nothing else basically.

Each participant was asked to measure their pH levels both in the morning, afternoon and evening of the day before the session and on the day of the session in such a way that they would time the afternoon measurement about 1,5 hour after the scheduled time of the session.
For measuring the pH levels we used simple litmus test strips kindly provided by the AlkaVitae® company.
In this way I ended up with a total of 360 measurements (3 measurements per day, 2 days per session, 6 sessions pp).

4.1.1 the acid-base balance in the body(pH, buffers, acids and bases)

In order to know what the measuring of pH levels actually tell you we need to look more closely into the so called acid-base balance in the body and how the body is constantly monitoring this balance in order to keep it within safe boundaries.

Probably most of us have heard of the pH scale ranging from 0 to 14, with 7 in the middle being neutral, anything below 7 is considered acidic and anything above is basic (or alkaline). This scale is based on the amount of hydrogen (H^+) ions present in a solution. In pure water hydrogen ions are spontaneously generated by the dissociation (ionisation) of a small percentage of water molecules into equal numbers of hydrogen and hydroxide (OH^-) ions. In truth the hydrogen ions are immediately attracted to un-ionised water molecules to form hydronium ions ($H3O^+$) while the hydroxide ions remain in solution because of their hydrogen bonds with other water molecules, but by convention scientists refer to hydrogen ions and their concentration as if they were free in this state in liquid water.

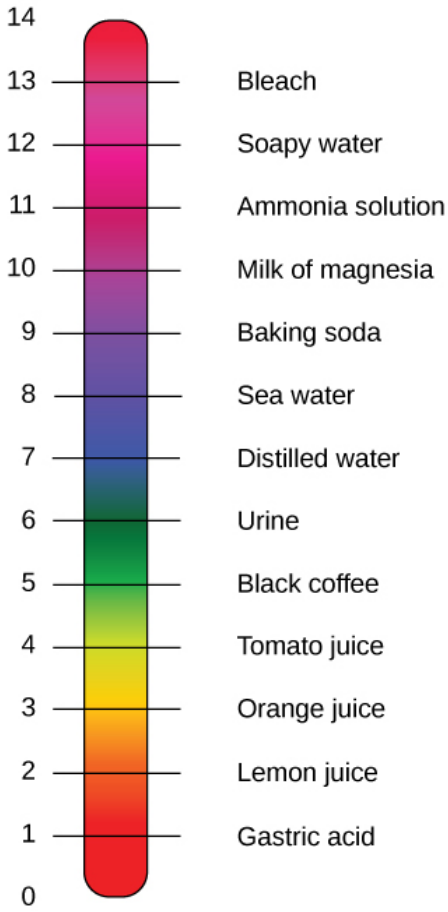
In chemistry the amount of reactants and products of chemical reactions in a solution are expressed in mole per litre, the mole being the unit of measurement for amount of substance in the international system of units. It is defined as the amount or sample of a chemical substance that contains as many particles as there are atoms in 12 grams of carbon-12 (the isotope of carbon with standard atomic weight 12 by definition). This number is expressed by the Avogadro constant which has a value of approximately $6,022140857 \times 10^{23}$ mol^{-1}.

The concentration of hydrogen ion dissociating from pure water is $1x\ 10^{-7}$ mol per liter of water. The pH is calculated as the negative of the base 10 logarithm of this concentration:

$pH = - \log[h^+]$

The negative log of 1x 10^{-7} equals 7 which is known as neutral pH.
From the aforementioned formula it follows that high concentrations of hydrogen ions yield a lower pH, and low concentrations a high pH.
The stronger the acid, the more readily it donates H^+.
For example hydrochloric acid (HCL) is highly acidic and completely dissociates into hydrogen and chloride ions whereas the acids in tomato juice or vinegar only partially dissociate and therefore are considered weak acids.
A strong alkaline substance on the other hand readily donates OH^- and/or reacts with hydrogen ions in this way lowering the amount of free H^+ in the system, thereby raising the overall pH.
Extremes in either direction from 7 are usually considered inhospitable to life.
In the human body the pH in cells (6,8) and blood (7,4) are kept very close to neutral. When the blood either becomes too acid(acidosis) or too alkaline(alkalosis) this is an important indication of a serious underlying problem which can be life threatening.

pH scale



The body has a couple of ways to make sure the pH levels are being kept within safe boundaries(for humans fluids like the blood must be maintained within the range of 7.35 to7.45) so we can eat and drink all kinds of nice acid and alkaline substances without dropping dead.
The key players here are chemical buffers, the kidneys and breathing.
There are several buffering agents that reversibly bind hydrogen ions in this way, keeping acidifying proceses in check. Extra cellular buffers include bicarbonate and ammonia, whereas proteins and phosphates act as intra cellular buffers.
The so called bicarbonate buffering system is especially key for the blood and the use of the breath since in this reaction carbon dioxide (CO_2)can be shifted through carbonic acid (H_2CO_3) to hydrogen ions (H^+) and bicarbonate (HCO_3^-) and vice versa.

$$H_2O + CO_2 \; <---> \; H_2CO_3 \; <---> H^+ + HCO_3^-$$

In this way acid-base imbalances that overcome the buffer system can be compensated for by changing the rate of ventilation.Increasing breathing expels more CO_2 so the above equation shifts to the left, leading to fewer free hydrogen ions and making the pH more alkaline - for more alkaline situations the opposite occurs.
The kidneys help maintain the acid-base balance by excreting hydrogen ions in the urine and reabsorbing bicarbonate from the urine.
Even though this system is slower than respiration, the kidney physiology has powerful mechanisms to control pH by means of excretion of excess acid or base.

Bicarbonate doesn’t have a transporter so its absorption involves a series of reactions in tubule lumen and epithelium. In response to acidosis the tubular cells reabsorb more bicarbonate from the tubular fluid, and the collecting duct cells secrete more hydrogen and generate more bicarbonate, and ammonia genesis leads to an increase in the formation of the NH_3 buffer.
In response to alkalosis, the kidneys may excrete more bicarbonate by decreasing hydrogen ion secretion from the tubular epithelial cells, and lowering the rates of glutamine metabolism and ammonium excretion.

4.1.2 the participants

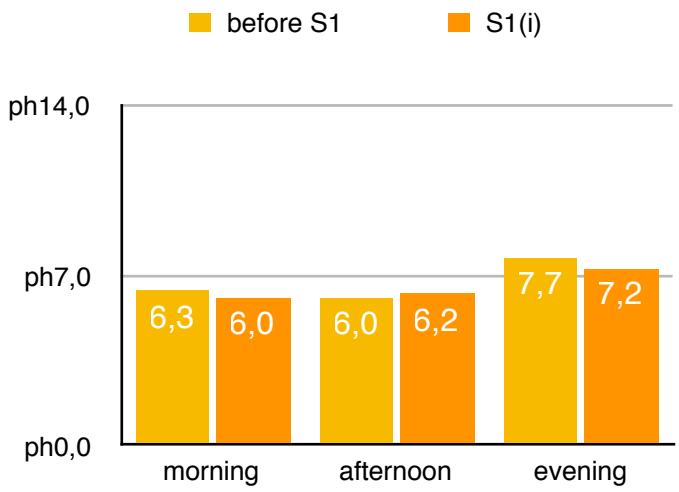
From the start this research was not focussed on the use of Bowen therapy in relation to any specific syndrome or physical malfunction so I didn't have to screen people for those specifics. What was important to me was if the people were in good health and if there wasn't any underlying illness or medication used that could influence pH levels and alter the measurements like for instance the use of diuretics, diabetes, known hyperventilation or hyperactive adrenals.
I asked them to not make any drastic changes in lifestyle and diet during the course of the research as these might alter the pH homeostasis temporarily.
Some of the participants were new to Bowen therapy and wanted to know how a Bowen session would feel, so automatically I placed them in the "touch" group.
Other than that I didn't look for a specific type of person that would somehow fit better in either "touch" of "non-touch" group. Since my practice is on the first floor of an organic food store, the people working there are familiar with what I do and they wanted to help me out with my research, so half of the list of participants are workers from that store. The other half consisted of friends and a colleague from a massage/physiotherapy practice I also work for.
I didn't decide this beforehand but in the end the group consisted almost entirely of women with only one man.

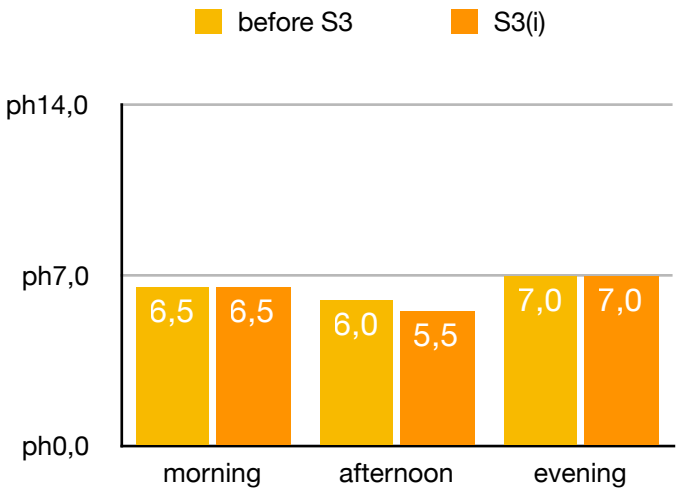
As for the division of age, six of the participants were in their forties, the youngest was 27 and the other three in their thirties.
To be more specific I made the following table showing both gender and age for all participants.

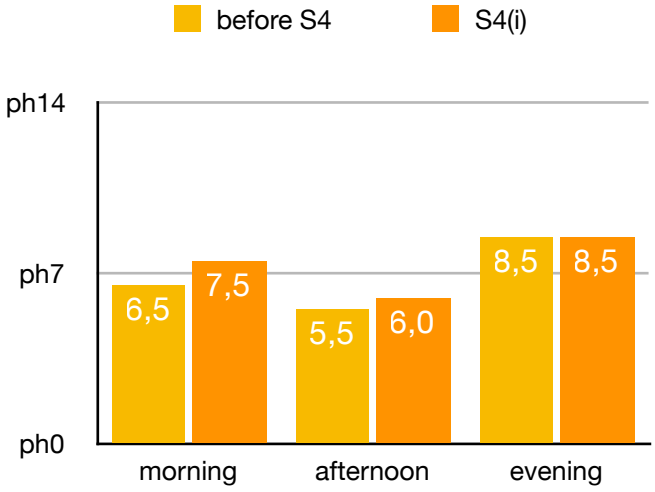
	27	37	38	41	42	43	44	47
pp1(f)								X
pp2(f)			X					
pp3(f)		X						
pp4(f)				X				
pp5(f)						X		
pp6(f)	X							
pp7(f)		X						
pp8(f)					X			
pp9(m)							X	
pp10(f)					X			

In the following paragraphs I will look into the measurements for every participant comparing pH levels of intent and non-intent sessions, both per day and as a group in order to see if any indication of the influence of intent pops up, starting with the "touch" group (pp1/5) followed by the "non-touch" group (pp6/10).
For each participant there are 6 measurement graphs to display, 3 sessions with intent (recognisable by the letter "i" between brackets), 3 non intent ("ni" between brackets).The letter "S" above the graph stands for session followed by the number of that particular session. As the intent/non intent was chosen by chance, and the graphs are grouped in intent and non intent, the original order from one to six is broken up.
I will first show the 3 graphs of the intent sessions followed by an analysis, then the 3 non-intent graphs with analysis, ending with a comparison for each participant separately if there is something noteworthy. After I've looked at all participants of the touch group I'll combine the found data in order to make an analysis of that group as a whole, followed by the same procedure for the non-touch group.
In paragraph 4.2 I will combine and discuss the data gathered from both analysis and theory in order to come to a conclusion.

4.1.3 participant 1 analysis







Participant 1 was a 47 year old female with a vegan dietary pattern so you might expect more alkaline measurements on average.
The interval between sessions of both the intent and non-intent sessions (two groups of three) was about seven to eight days here.
Looking at the measurements surrounding her intent sessions (S1, S3 and S4), you can see a consistent pattern both in the measurements taken on the day before and on the day of the actual session, namely a lowering of pH in the afternoon as compared to the morning and then up again in the evening, with the evening measurement being the highest. With the afternoon measurement on session day S1 you see a slight alteration of this pattern because there the afternoon measurement on the session day is up by 0,2 (6,2) as compared to the morning (6,0).
Comparing the "before" and session day measurements for each separate day did not reveal a pattern in the sense that, for instance, the rise or fall of pH levels from morning to afternoon and afternoon to evening were consistently more or less during session days as compared to "before" days.
If you look at all the morning, afternoon and evening measurements of S1,3, and 4 and see how many times the session day measurements are either lower, equal or higher than on "before" days you get the following table that from now on I will refer to as the LEH table (lower, equal, higher) -

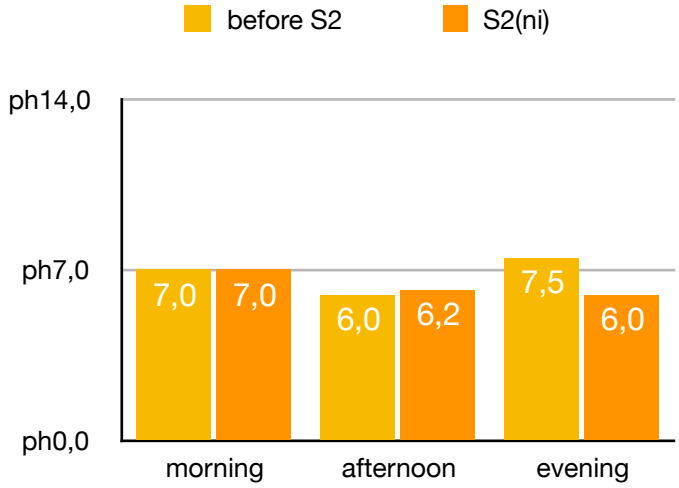
	lower	equal	higher
morning	X	X	X
afternoon	X		XX
evening	X	XX	

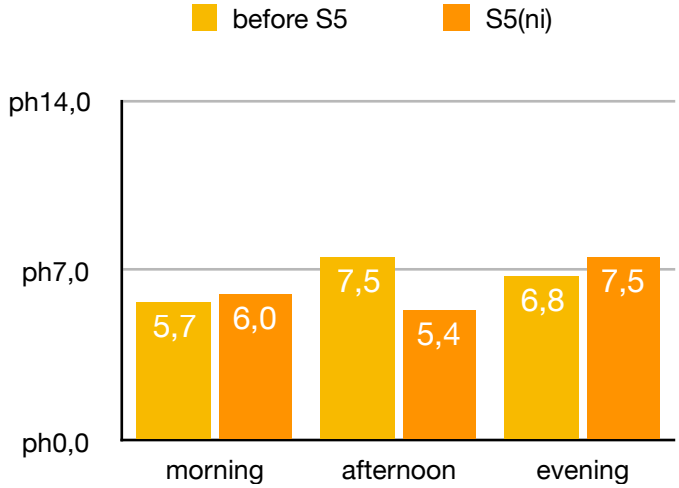
Comparing the overall average per day(intent) gets the following table -

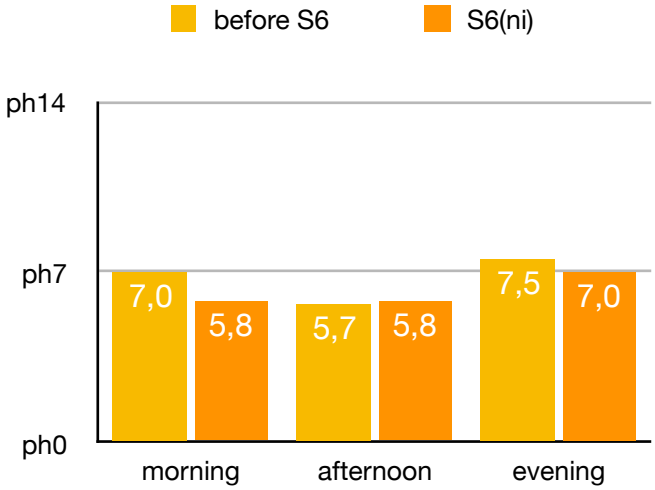
overall average per day	Before day	session day
S1(i)	6,7	6,5
S3(i)	6,5	6,3
S4(i)	6,8	7,3

Comparing the overall average of the combined morning, afternoon and evening(MAE) measurements(intent) gives the following table -

overall average MAE	before day	session day
morning	6,4	6,7
afternoon	5,8	5,9
evening	7,7	7.6


before S2
S2(ni)
ph14,0
ph7,0
ph0,0
7,0
7,0
6,0
6,2
7,5
6,0
morning
afternoon
evening


before S5
S5(ni)
ph14,0
ph7,0
ph0,0
5,7
6,0
7,5
5,4
6,8
7,5
morning
afternoon
evening


before S6
S6(ni)
ph14
ph7
ph0
7,0
5,8
5,7
5,8
7,5
7,0
morning
afternoon
evening

The graphs of the non-intent sessions (S2, S5, S6) show a more varied pattern from morning to afternoon and evening. Every session day graph has a different pattern here, and in the “before” graphs we see two days(S2 and S6) with the pattern that dominated the intent graphs of going down in the afternoon and rising in the evening, with the evening being the highest measurement.
The pH levels in the session day measurements are a bit closer together than in the “before” day levels with the exception of the evening level on S5.
The LEH table is as follows:

	lower	equal	higher
morning	X	X	X
afternoon	X		XX
evening	XX		X

Overall average per day(non-intent):

overall average	before day	session day
S2(ni)	6,8	6,4
S5(ni)	6,7	6,3
S6(ni)	6,7	6,2

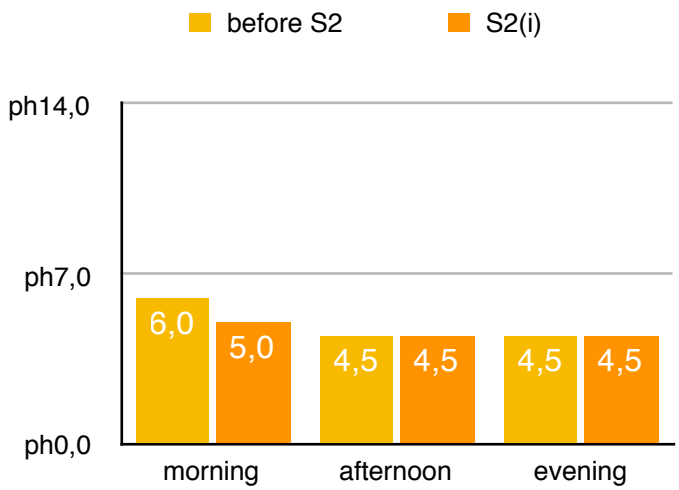
Overall average MAE(non-intent):

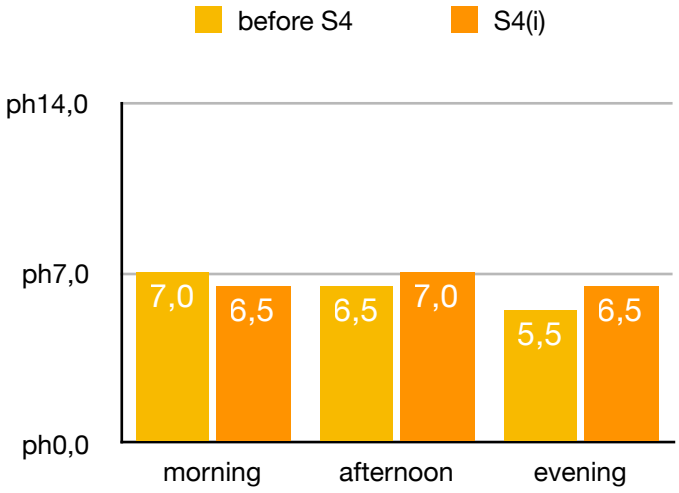
overall average MAE	before day	session day
morning	6,6	6,3
afternoon	6,4	5.8
evening	7,3	6,8

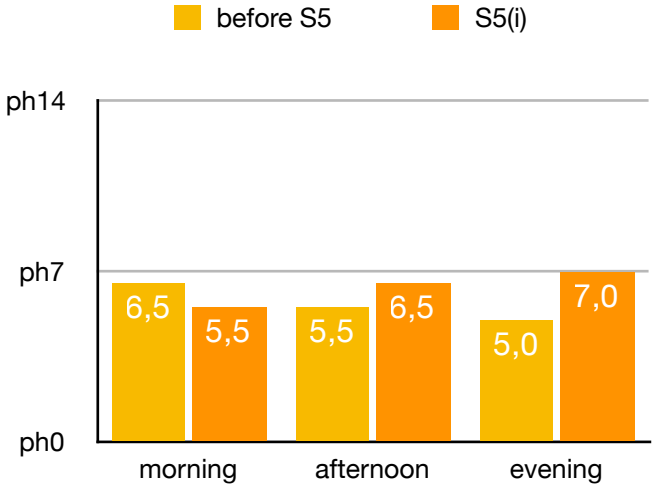
Looking at the combined data I’m inclined to say that for this person, at least during the duration of the research, the pattern of pH levels going down in the afternoon and up in the evening is the base pattern, because in the before graphs the pattern is there five out of six. In the session day graphs you see this two out of three with the intent sessions and one out of three with the non intent.

The LEH table shows the same afternoon pattern both for intent and non-intent of one time lower and two times higher and never equal. The pH levels for the non-intent sessions were lower both in the average per day and in the overall average as compared to the “before” day. The intent session levels average per day were two times lower and one time higher than the “before” levels whereas in the overall average total calculation the intent levels were higher two times and lower one time.

4.1.4 participant 2 analysis







Participant 2 was a 38 year old female with a vegetarian dietary pattern.
The intervals between sessions were between five and eight days with a gap of four weeks between the first two sessions as an exception.
In the days surrounding the first session she was preparing for an exciting trip to New York (hence the following four week gap), causing some stress which might explain the significantly lower levels in the first graph compared to the others, both intent and non-intent.
I consider the first graph to be an anomaly as compared to the other measurement levels and will not use it in the analysis.
Looking at the other graphs I can't really distinguish a pattern that is clearly standing out.

The LEH table for intent sessions (without the first session's measurements):

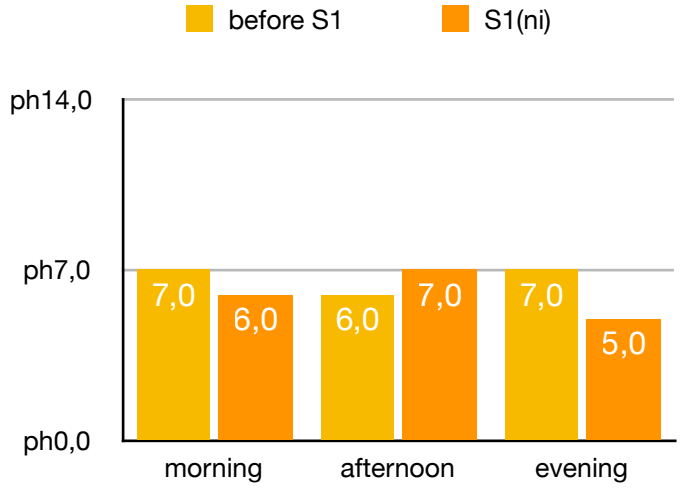
	lower	equal	higher
morning	XX		
afternoon			XX
evening			XX

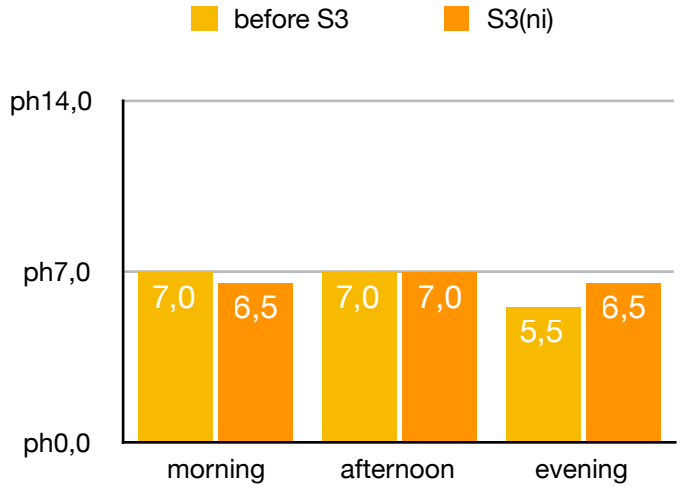
Overall average per day(intent):

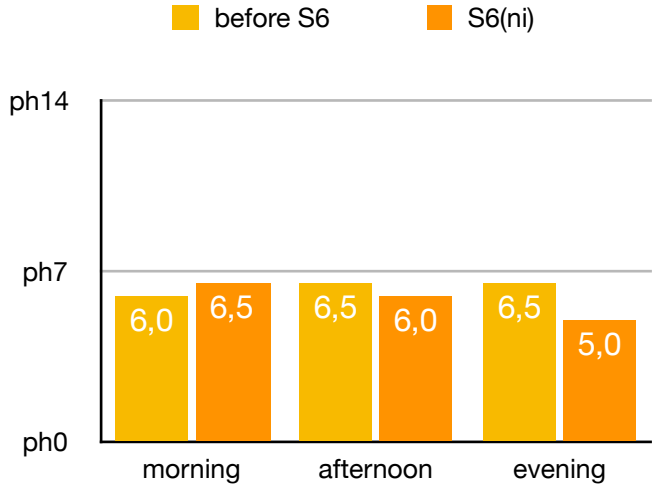
overall average	before day	session day
S2(i)	data not used	data not used
S4(i)	6,3	6,7
S5(i)	5,7	6,3

Overall average MAE(intent):

overall average MAE	before day	session day
morning	6,8	6,0
afternoon	6,0	6,8
evening	5,2	6,8


before S1
S1(ni)
ph14,0
ph7,0
ph0,0
7,0
6,0
6,0
7,0
7,0
5,0
morning
afternoon
evening


before S3
S3(ni)
ph14,0
ph7,0
ph0,0
7,0
6,5
7,0
7,0
5,5
6,5
morning
afternoon
evening


before S6
S6(ni)
ph14
ph7
ph0
6,0
6,5
6,5
6,0
6,5
5,0
morning
afternoon
evening

Again with the non-intent measurements there is no dominant pattern.
In two session days the levels of the before day are closer together than on the session day namely on S1 and S6.

The LEH table(non-intent):

	lower	equal	higher
morning	XX		X
afternoon	X	X	X
evening	XX		X

Overall average per day (non-intent):

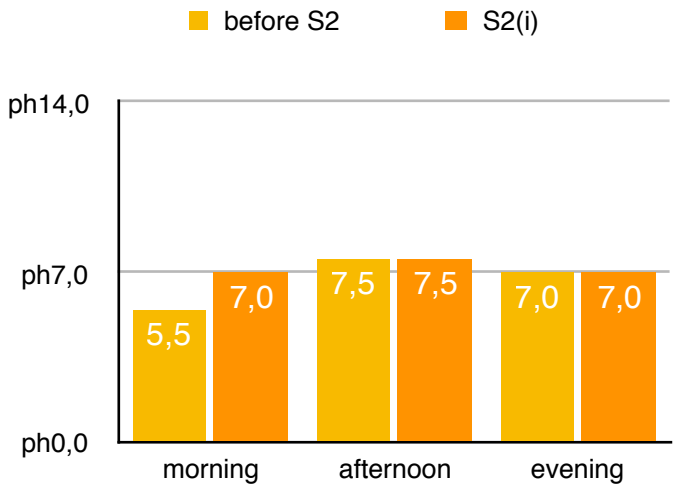
overall average	before day	session day
S1(ni)	6,7	6,0
S3(ni)	6,5	6,7
S6(ni)	6,3	5,8

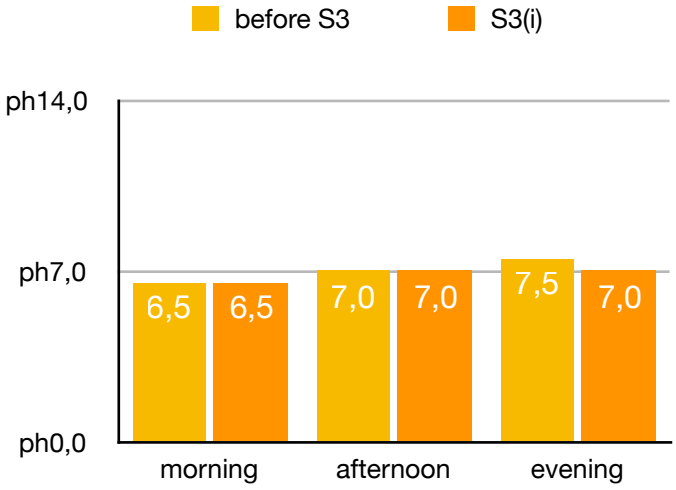
Overall average MAE(non-intent):

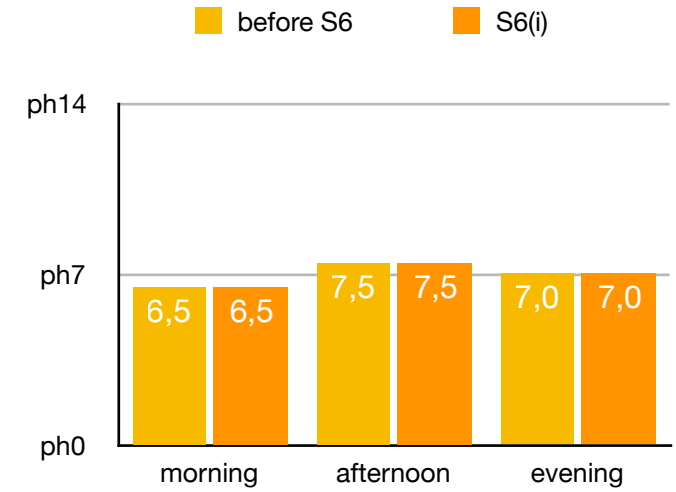
overall average MAE	before day	session day
morning	6,7	6,3
afternoon	6,5	6,7
evening	6,3	5,5

The data in participant 2’s average tables shows that on the intent session days the pH levels are consistently higher than on the accompanying before days which is not the case with the non-intent days, where it fluctuates.

4.1.5 participant 3 analysis







Participant 3 was a 37 year old female with a vegetarian dietary pattern.
The intervals between sessions were one week except for a five week gap between the first two sessions.
Unfortunately on the first evening of her non- intent session day she forgot to make her measurement so this graph is incomplete.
Looking at her intent graphs, you see a stable pattern evolving around pH level with the 5,5 level on the morning of S2 being the exception to the rule, the other levels are either 7,0 or else 0,5 above or below 7,0.

LEH table (intent):

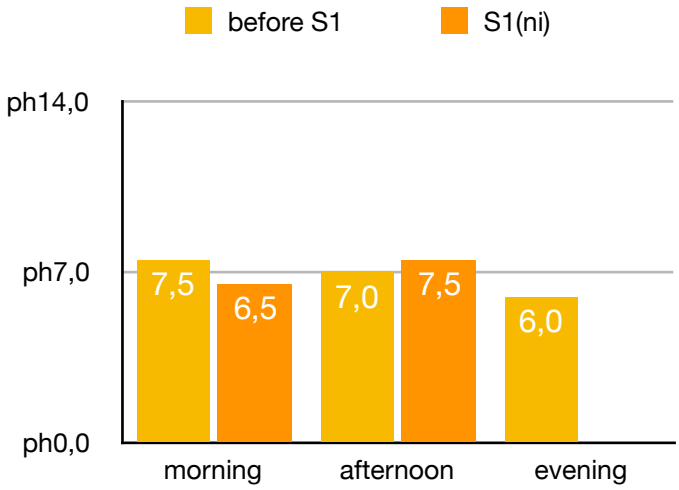
	lower	equal	higher
morning		XX	X
afternoon		XXX	
evening	X	XX	

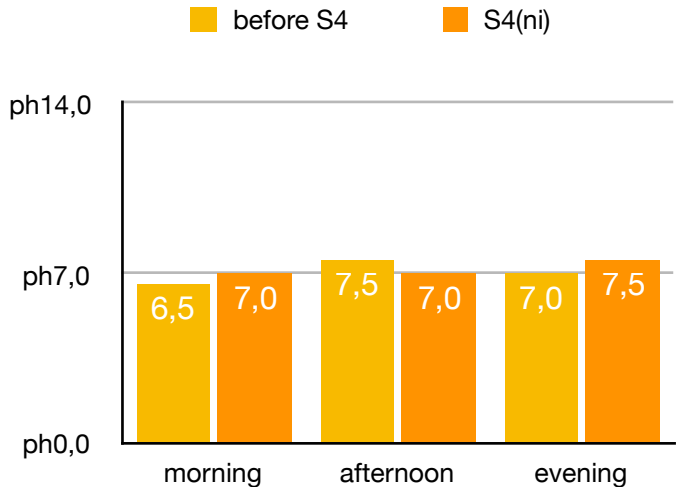
Overall average per day(intent):

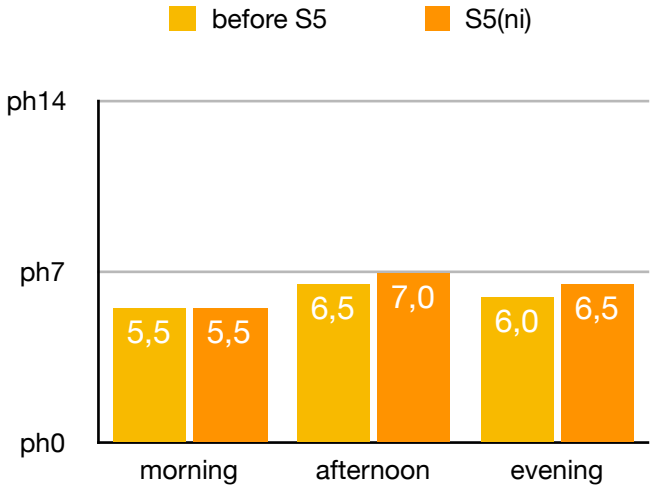
overall average	before day	session day
S2(i)	6,7	7,2
S3(i)	7,0	6,8
S6(i)	7.0	7,0

Overall average MAE (intent):

overall average MAE	before day	session day
morning	6,2	6,7
afternoon	7.3	7.3
evening	7,2	7,0


before S1
S1(ni)
ph14,0
ph7,0
ph0,0
7,5
6,5
7,0
7,5
6,0
morning
afternoon
evening


before S4
S4(ni)
ph14,0
ph7,0
ph0,0
6,5
7,0
7,5
7,0
7,0
7,5
morning
afternoon
evening


before S5
S5(ni)
ph14
ph7
ph0
5,5
5,5
6,5
7,0
6,0
6,5
morning
afternoon
evening

The non-intent readings show no clear pattern to differentiate between before and session days.

The LEH table (non-intent):

	lower	equal	higher
morning	X	X	X
afternoon	X		XX
evening			XX

Nota bene: the S1 evening session reading is missing hence the 8 x's instead of 9.
Overall average per day (non-intent):

	before day	session day
S1(ni)	7,3	7,0
S4(ni)	7,0	7,2
S5(ni)	6,0	6,3

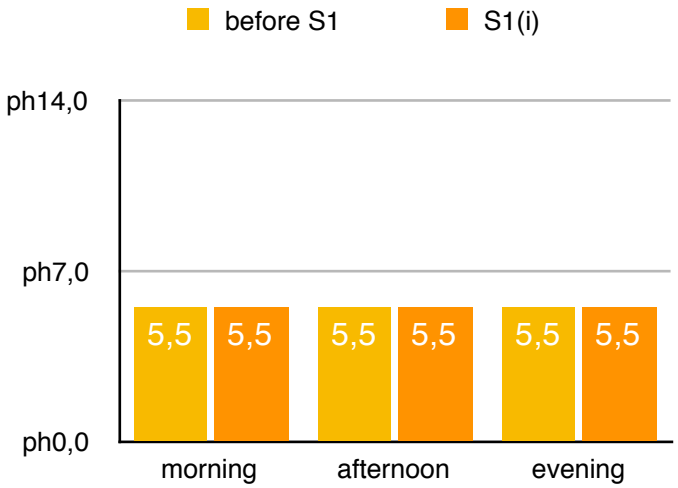
Nota bene: for S1 I could only use morning and afternoon readings so the picture is incomplete there.

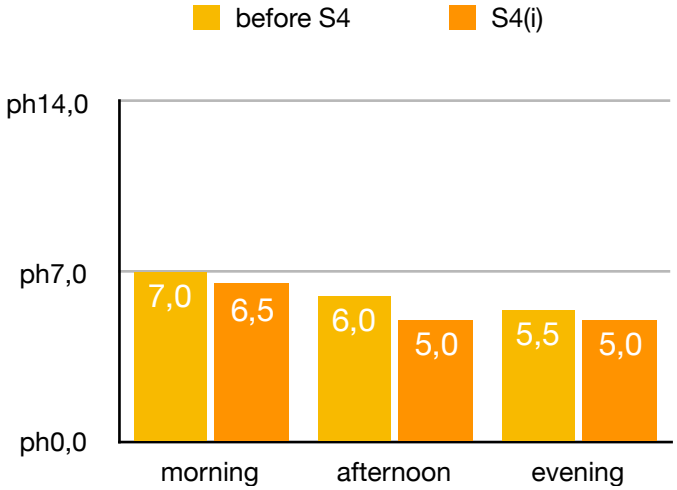
Overall average MAE(non-intent):

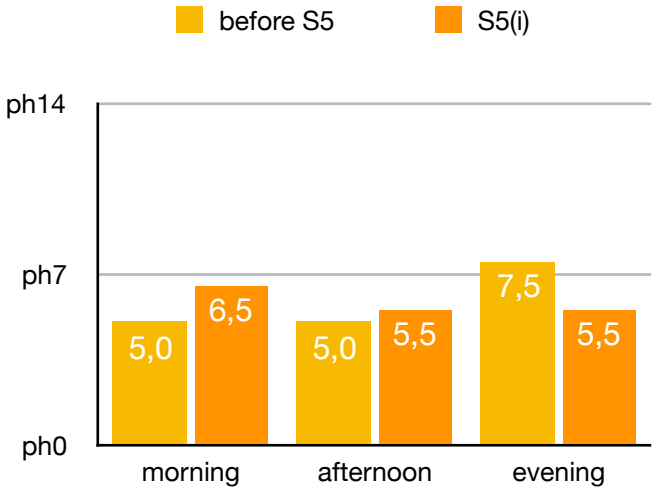
overall average MAE	before day	session day
morning	6,5	6,3
afternoon	7,0	7,2
evening	6,5	7,0

Also here I only used the S4 and S5 graph to establish an evening average because of the missing measurement in S1.

4.1.6 participant 4 analysis







Participant 4 was a 41 year old female with an omnivorous dietary pattern.
Intervals between sessions were 7 to 8 days.
Her S1(i) graph is the first one so far where all the readings show the same level of 5,5. I consider this to be either an anomaly or just getting used to the readings on the litmus paper.
Since they're all 5,5, I can still use them in the average calculations because they will not influence the ratios.

LEH table (intent):

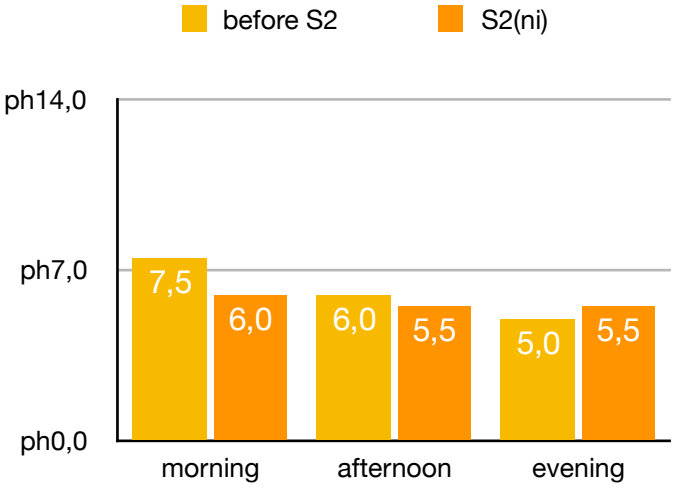
	lower	equal	higher
morning	X	X	X
afternoon	X	X	X
evening	XX	X	

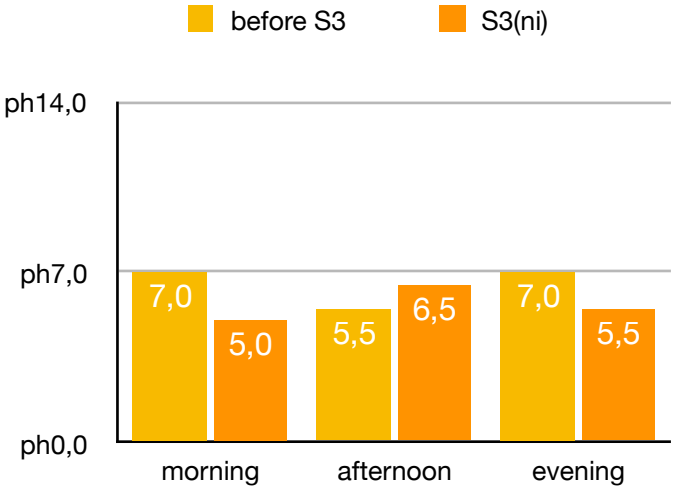
Overall average per day (intent):

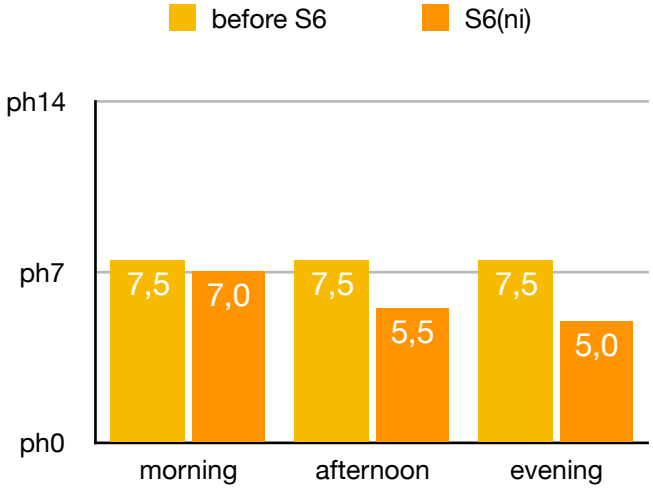
	before day	session day
S1(i)	5,5	5,5
S4(i)	6,2	5,5
S5(i)	5,8	5,8

Overall average MAE(intent):

overall average MAE	before day	session day
morning	5,8	6,2
afternoon	5,5	5,3
evening	6,2	5.3


before S2
S2(ni)
ph14,0
ph7,0
ph0,0
7,5
6,0
6,0
5,5
5,0
5,5
morning
afternoon
evening


before S3
S3(ni)
ph14,0
ph7,0
ph0,0
7,0
5,0
5,5
6,5
7,0
5,5
morning
afternoon
evening


before S6
S6(ni)
ph14
ph7
ph0
7,5
7,0
7,5
5,5
7,5
5,0
morning
afternoon
evening

LEH table (non-intent):

	lower	equal	higher
morning	XXX		
afternoon	XX		X
evening	XX		X

Overall average per day (non-intent):

	before day	session day
S2(ni)	6,2	5,7
S3(ni)	6,5	5,7
S6(ni)	7,5	5,8

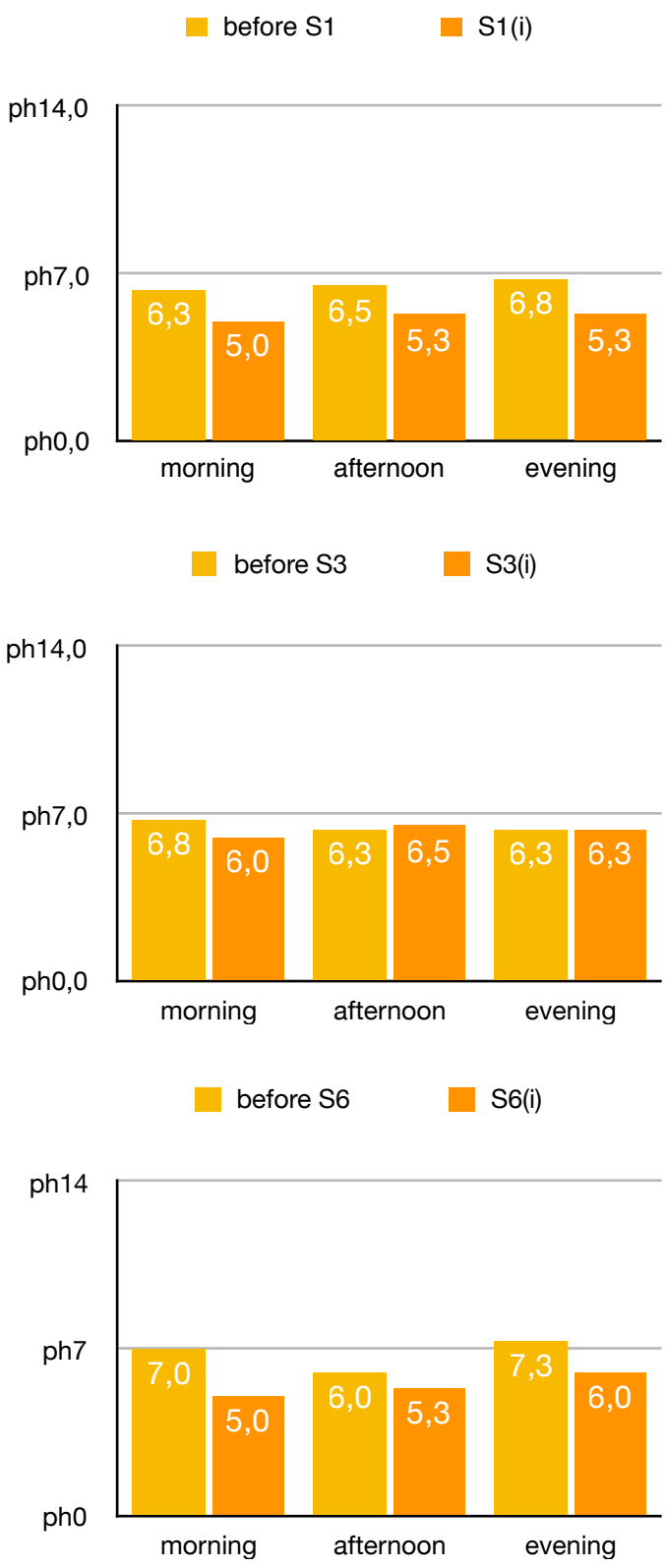
Nota bene: readings on the before day of S6 all came out 7.5

Overall average MAE(non-intent):

overall average MAE	before day	session day
morning	7,3	6,0
afternoon	6,3	5,8
evening	6,5	5,3

Interestingly enough the overall per day tables here show that pH levels were consistently lower on non-intent session day as compared with the day before whereas with the intent session days levels were two times equal and one time lower by 0.7.

4.1.7 participant 5 analysis



Participant 5 was a 43 year old female with an omnivorous dietary pattern.
Intervals between sessions were 7 to 8 days.
No initial patterns discerned.

LEH table(intent):

	Lower	equal	higher
morning	XXX		
afternoon	XX		X
evening	XX	X	

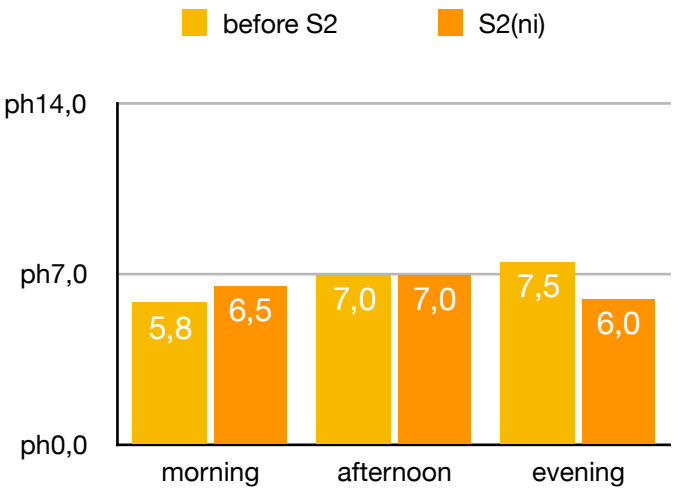
Overall average per day(intent):

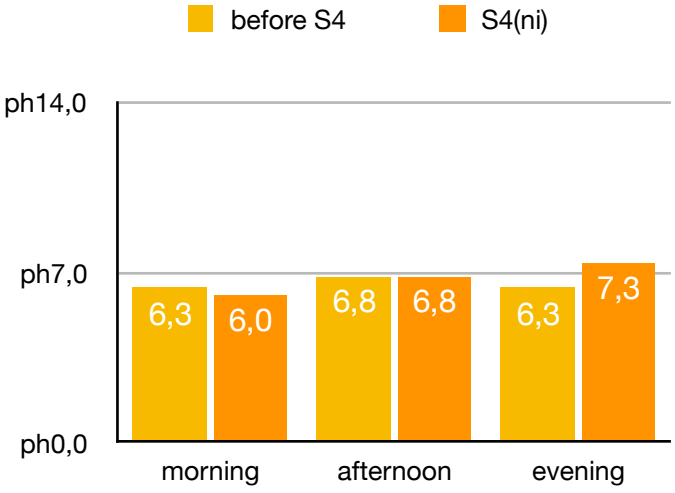
	before day	session day
S1(i)	6,5	5,2
S3(i)	6,5	6,3
S6(i)	6,8	5,4

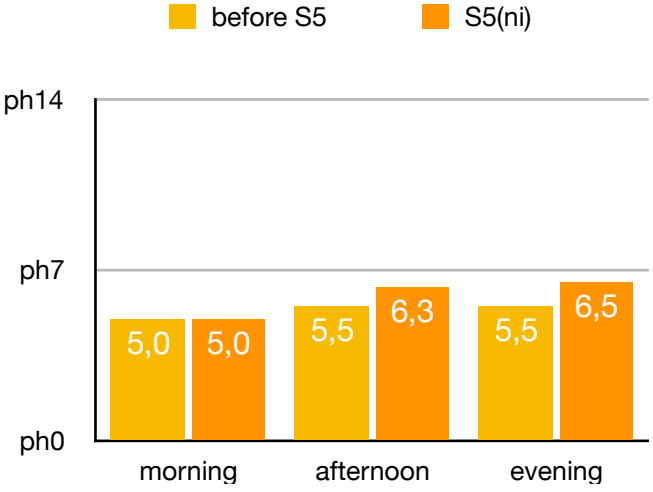
Overall average MAE(intent):

overall average MAE	before day	session day
morning	6,7	5,3
afternoon	6,3	5,7
evening	6,8	5,9

Here the overall readings on session days were consistently lower than on before days.


before S2
S2(ni)
ph14,0
ph7,0
ph0,0
5,8
6,5
7,0
7,0
7,5
6,0
morning
afternoon
evening


before S4
S4(ni)
ph14,0
ph7,0
ph0,0
6,3
6,0
6,8
6,8
6,3
7,3
morning
afternoon
evening


before S5
S5(ni)
ph14
ph7
ph0
5,0
5,0
5,5
6,3
5,5
6,5
morning
afternoon
evening

The levels in the non-intent graphs appear to be closer together, giving a smoother impression than the intent graphs before.

LEH table(non-intent):

	lower	equal	higher
morning	X	X	X
afternoon		XX	X
evening	X		XX

Overall average per day(non-intent):

	before day	session day
S2(ni)	6,8	6,5
S4(ni)	6,5	6,7
S5(ni)	5.3	5,9

Overall average MAE(non-intent):

	before day	session day
morning	5,7	5,8
afternoon	6,4	6,7
evening	6,4	6,6

Looking at both intent and non-intent, it is clear that intent session levels are lower than non-intent levels.

4.1.8 Touch group analysis

Whilst looking at the graphs and tables in the touch group I have to keep in mind that in fact we've been testing two important parameters at the same time here.
Because this was the touch group it means the participants were treated with Bowen moves on both the intent and non-intent occasions.
It is my hypothesis that for maximum effect in a treatment two important ingredients are intent and well executed moves (other ingredients were discussed in part one and here I would add knowledge of pathology/anatomy/ physiology, empathy and intuition).
So it could be more than possible that the moves themselves influenced the levels on both occasions.
That being said let's take a look at the data.
When I combine the LEH tables of the touch group, the intent session table looks as follows(instead of the X mark I used numbers for convenience this time).

Combined LEH table(intent):

	lower	equal	higher
morning	8	4	2
afternoon	4	4	6
evening	6	6	2

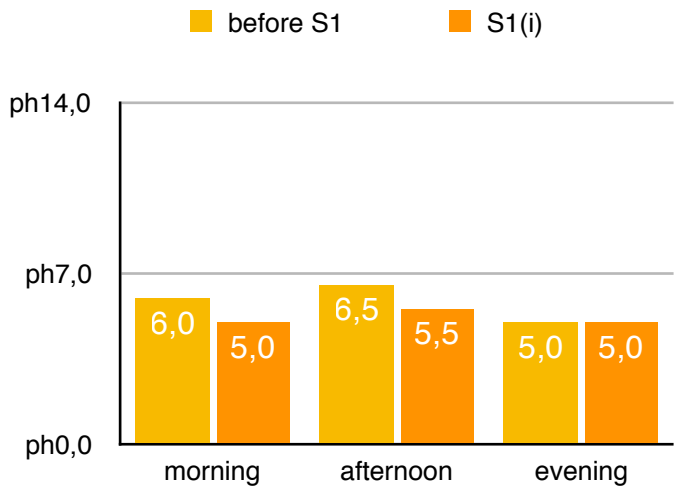
Combined LEH table(non-intent):

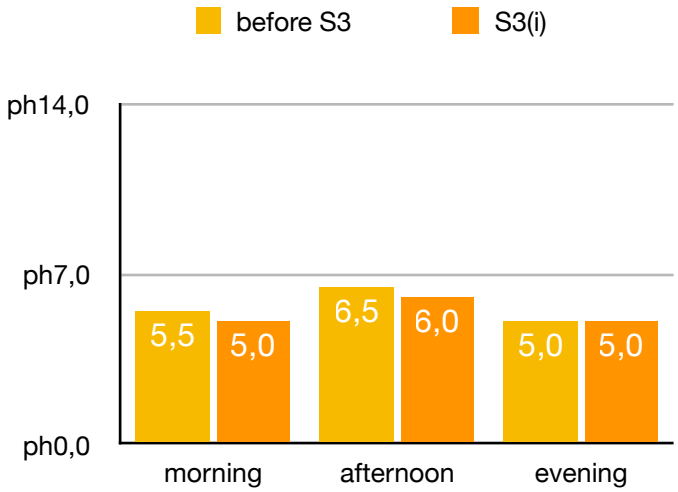
	lower	equal	higher
morning	8	3	4
afternoon	5	3	7
evening	7		7

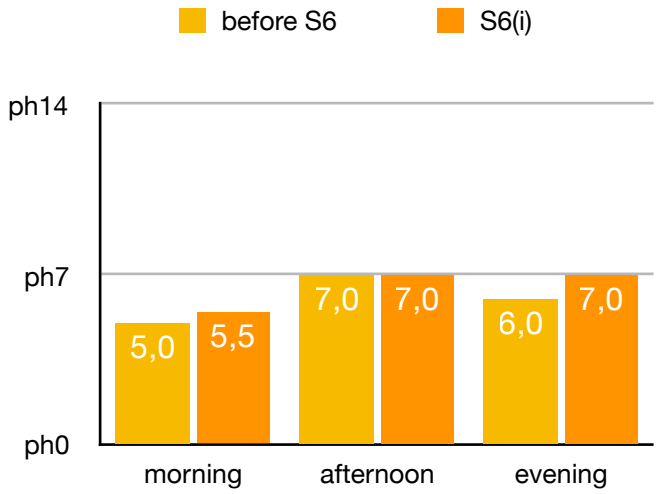
For the observant reader: the numbers in the intent combined LEH table do not add up to 15 (5 participants times 3 comparisons) because I took graph S2(i) of participant 2 out of the equation since I considered it to be an anomaly- hence they add up to 14 instead of 15.
In the non-intent combined LEH table the evening numbers add up to 14 because of the one evening measurement that was forgotten by participant 3.
Looking at the two tables I do not discern a significant difference to say that intent or non- intent makes a clear difference to the outcome.
But there's more than that, I think. If you would look at them from the viewpoint of touch alone, without intent or non-intent, and combine the two there are some things noteworthy I think.
On 16 out of 29 accounts, the mornings of session day measurements are lower than on before day (the other accounts are divided by 7 times equal and 6 times higher), which is fascinating since you would expect the morning reading on session days to be more or less random because there is no session influence yet.
So what is going on here? The only thing I can come up with at the moment is that perhaps the fact that it's session day gives a bit more stress in the bodymind of the participants(but I really hope that my sessions are not that scary!).

When we look at the measurements after the participants underwent a session (afternoon and evening), we see that afternoon readings are significantly more often higher (13 times) than not and the same goes for the evening where readings are significantly more often lower (also 13 times) than not.
I'm not a statistics expert so excuse me if I'm wrong, but I think these are not random numbers.So with caution I would suggest that the touch sessions do influence the urinary PH levels albeit not directly by intent.
All the more interesting now to look at the data of the non-touch group before jumping to conclusions.

4.1.9 participant 6 analysis







Participant 6 was a 27 year old female with an omnivorous dietary pattern. Intervals between sessions were 7 days.
Except for the session day in the S6 graph, you see a regular overall pattern in levels starting low in the mornings, rising in the afternoon and falling again in the evening. The S6 graph stands out a bit in the sense that the level jump from morning to afternoon is bigger than in the other two graphs (2 points on the before day and 1,5 points on session day).

LEH table (intent):

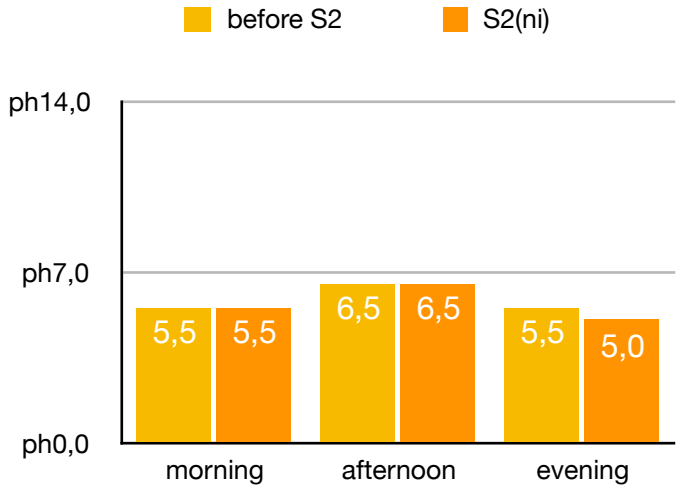
	lower	equal	higher
morning	XX		X
afternoon	XX	X	
evening		XX	X

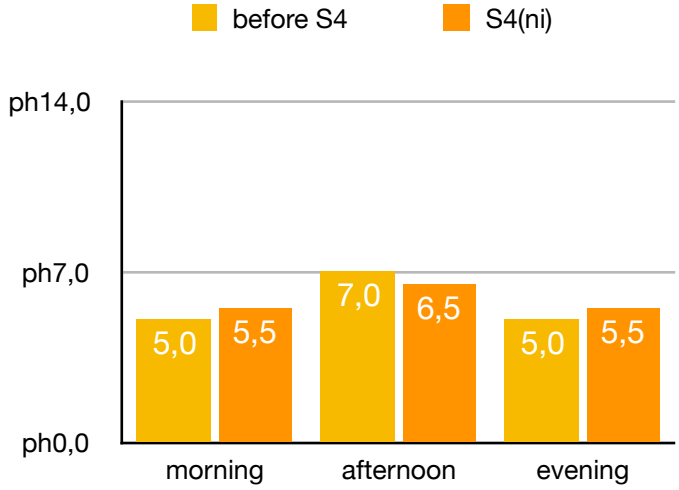
Overall average per day:

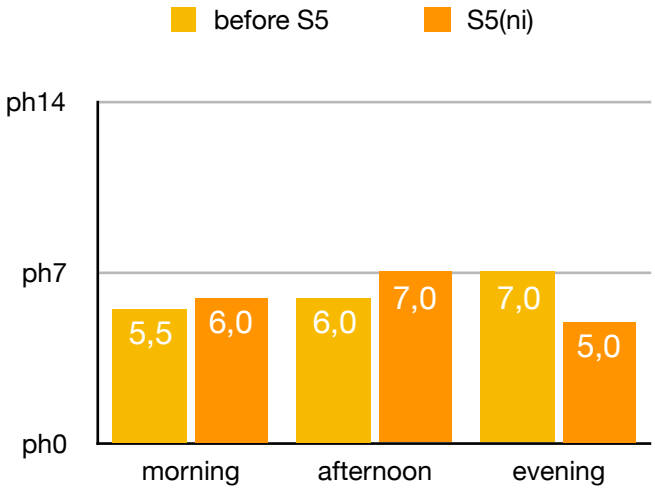
	before day	session day
S1(i)	5,8	5,2
S3(i)	5,7	5,3
S6(i)	6,0	6,3

Overall average MAE(intent):

	before day	session day
morning	5,5	5,2
afternoon	6,7	6,2
evening	5,3	5,7


before S2
S2(ni)
ph14,0
ph7,0
ph0,0
5,5
5,5
6,5
6,5
5,5
5,0
morning
afternoon
evening


before S4
S4(ni)
ph14,0
ph7,0
ph0,0
5,0
5,5
7,0
6,5
5,0
5,5
morning
afternoon
evening


before S5
S5(ni)
ph14
ph7
ph0
5,5
6,0
6,0
7,0
7,0
5,0
morning
afternoon
evening

Except for the before day in the S5 graph the same pattern of lower in the morning, rising in the afternoon and falling in the evening continues.

LEH table(non-intent):

	lower	equal	higher
morning		X	XX
afternoon	X	X	X
evening	XX		X

Overall average per day(non-intent):

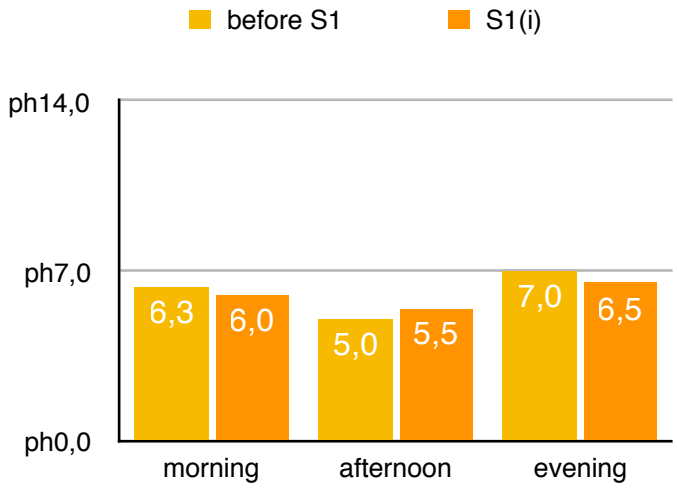
	before day	session day
S2(ni)	5,8	5,7
S4(ni)	5,7	5,8
S5(ni)	6,2	6,0

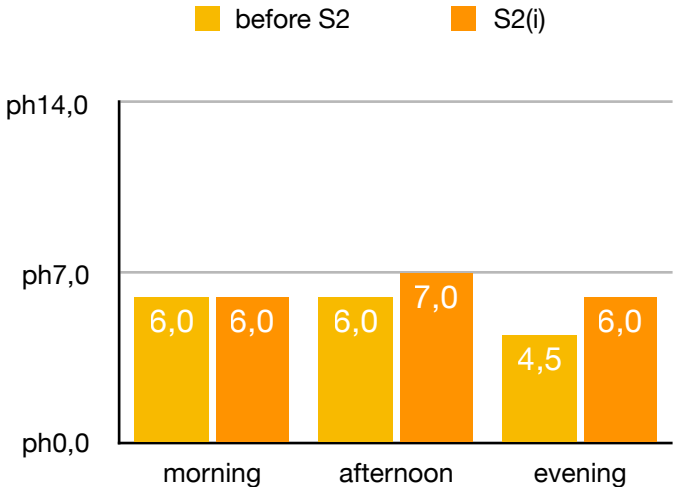
Overall average MAE(non-intent):

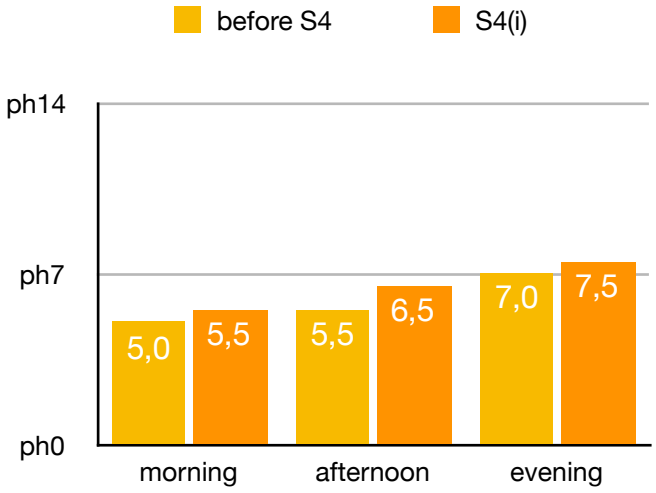
	before day	session day
morning	5,3	5,7
afternoon	6,5	6,7
evening	6,0	5,2

Even though the levels in the non-intent overall average per day table are closer together than in the overall average intent table, this doesn’t really show in the MAE tables. Apart from that I do not see any significant patterns and/or differences between intent and non-intent data.

4.1.10 participant 7 analysis







Participant 7 was a 37 year old female with a vegetarian dietary pattern
Intervals between sessions were 7 days.
In the S1 and the S4 graphs, both the before and the session graph show the same pattern but if you compare only before days or just session patterns you see that they're all different.

LEH table(intent):

	lower	equal	higher
morning	X	X	X
afternoon			XXX
evening	X		XX

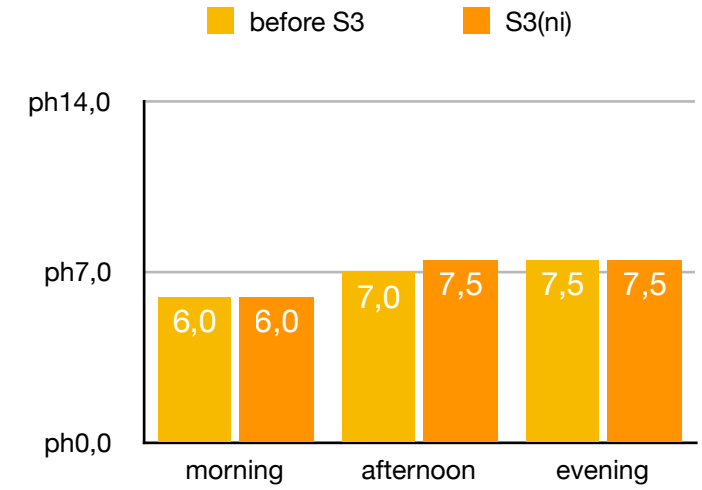
Overall average per day(intent):

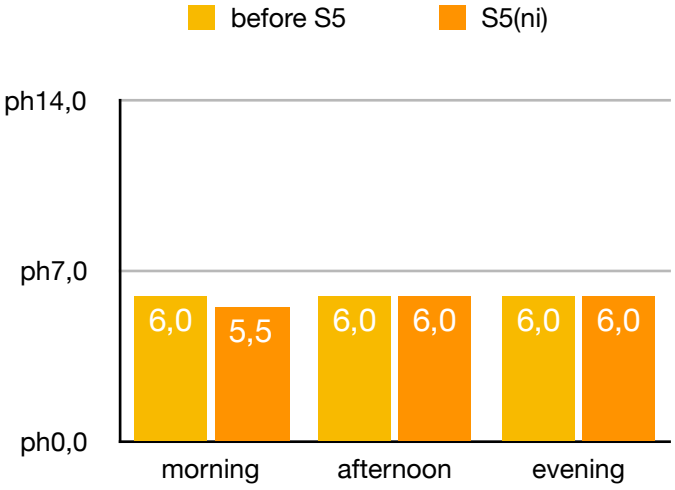
	before day	session day
S1(i)	6,1	6,0
S2(i)	5,5	6,3
S4(i)	5,8	6,5

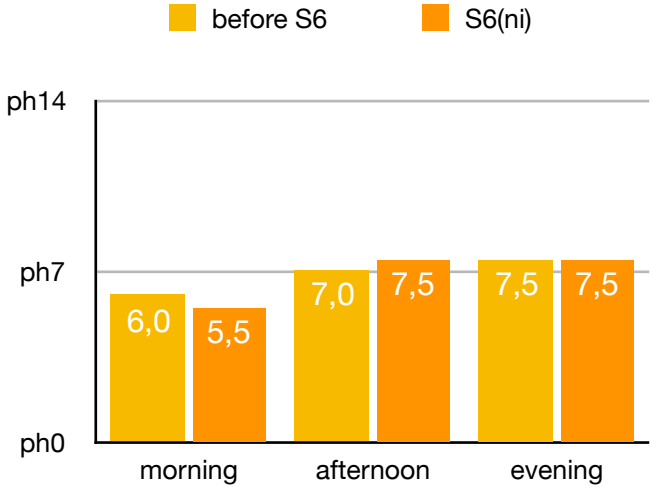
Overall average MAE(intent):

	before day	session day
morning	5,7	5,8
afternoon	5,5	6,3
evening	6,2	6,7

Here you can see that in particular the average afternoon and evening levels are higher on session days than on before days.
They actually are higher 5 times out of 9 (see LEH table).
And per day the session day overall is 2 times higher out of 3.


before S3
S3(ni)
ph14,0
ph7,0
ph0,0
6,0
6,0
7,0
7,5
7,5
7,5
morning
afternoon
evening


before S5
S5(ni)
ph14,0
ph7,0
ph0,0
6,0
5,5
6,0
6,0
6,0
6,0
morning
afternoon
evening


before S6
S6(ni)
ph14
ph7
ph0
6,0
5,5
7,0
7,5
7,5
7,5
morning
afternoon
evening

At first glance the non-intent graphs appear more smooth and together, almost mimicking one another.

LEH table(non-intent):

	lower	equal	higher
morning	XX	X	
afternoon		X	XX
evening		XXX	

Overall average per day(non-intent):

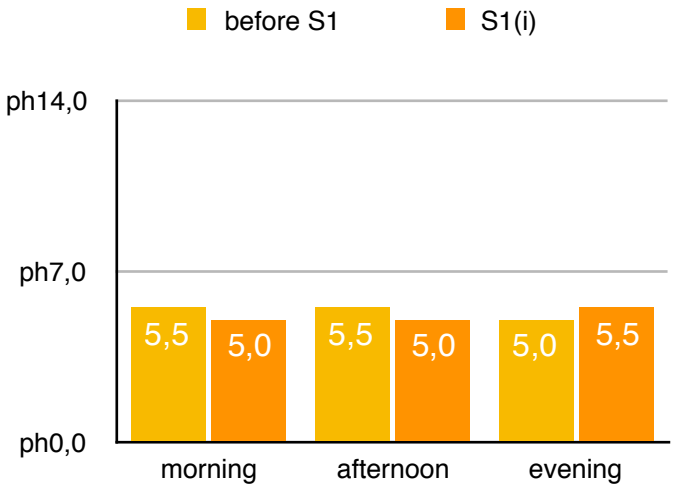
	before day	session day
S3(ni)	6,8	7,1
S5(ni)	6,0	5,8
S6(ni)	6,8	6,8

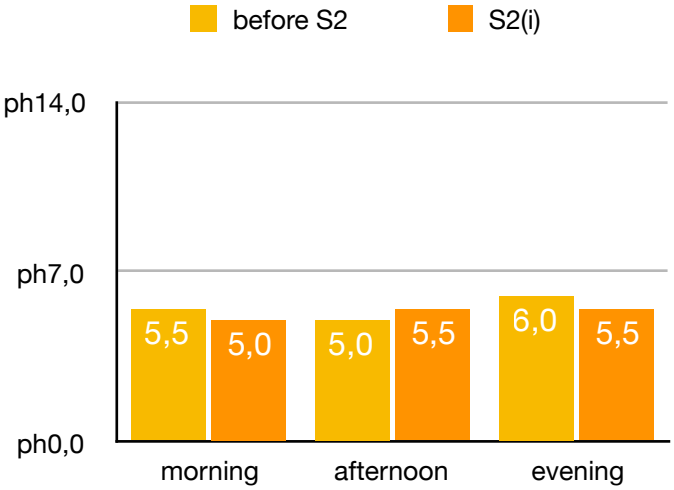
Overall average MAE(non-intent):

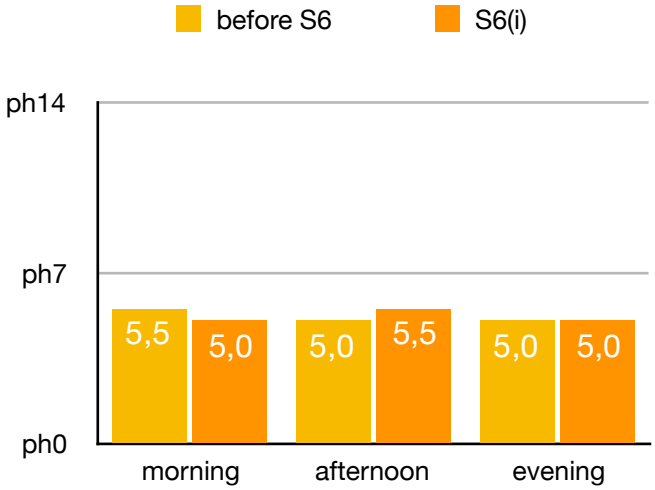
	before day	session day
morning	6,0	5,7
afternoon	6,7	7,0
evening	7,0	7,0

The first glance appearance of equality continued to show in the other tables as well, so no real differences and almost identical graphs- quite different from the intent tables.

4.1.11 participant 8 analysis







Participant 8 was a 42 year old female with a vegetarian dietary pattern. Intervals between sessions were 7 days and, due to a holiday, we first did a series of three sessions followed by another one with a fourteen day gap in between.
No pattern standing out in the intent graphs but what you can say is that the before day/session day levels are at a maximum of 0,5 apart and one time equal.

LEH table(intent):

	lower	equal	higher
morning	XXX		
afternoon	X		XX
evening	X	X	X

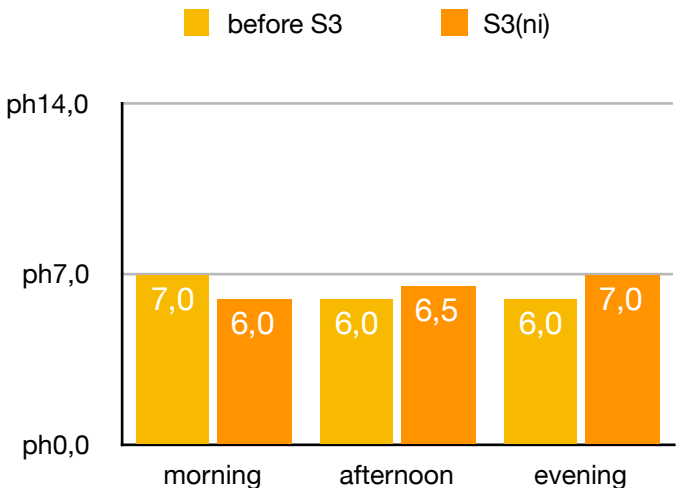
Overall average per day(intent):

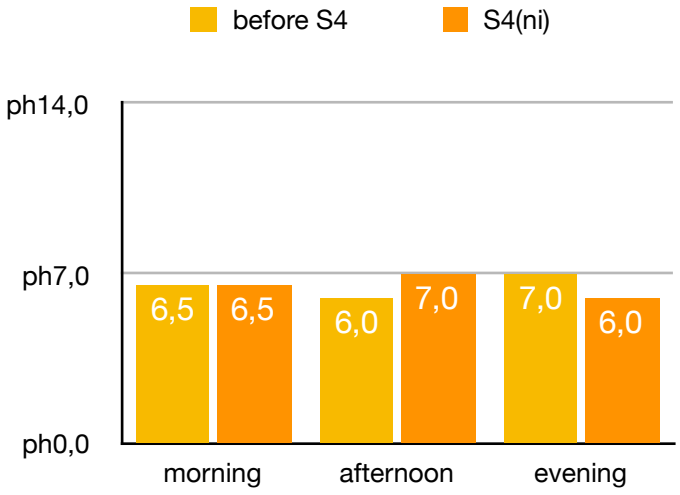
	before day	session day
S1(i)	5,3	5,2
S2(i)	5,5	5,3
S6(i)	5,2	5,2

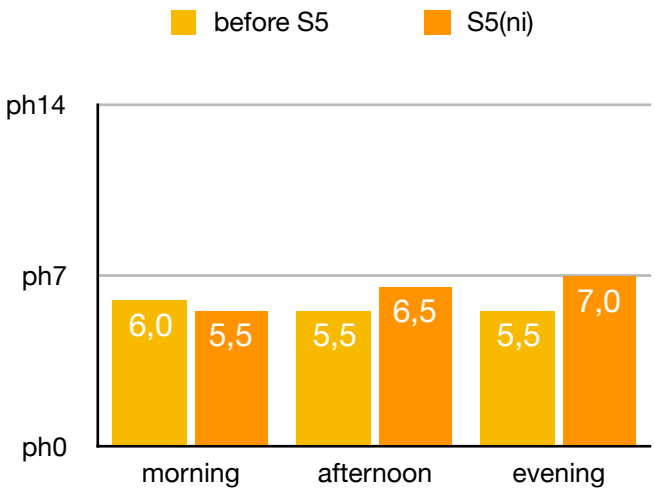
Overall average MAE(intent):

	before day	session day
morning	5,5	5,0
afternoon	5,2	5,2
evening	5,3	5,3

The averages are really close or equal in both tables with a maximum deviation of 0,2 in S2(i).
Levels are lower on the mornings of session day 3 out of 3 and higher in the afternoon 2 out of 3.


before S3
S3(ni)
ph14,0
ph7,0
ph0,0
7,0
6,0
6,0
6,5
6,0
7,0
morning
afternoon
evening


before S4
S4(ni)
ph14,0
ph7,0
ph0,0
6,5
6,5
6,0
7,0
7,0
6,0
morning
afternoon
evening


before S5
S5(ni)
ph14
ph7
ph0
6,0
5,5
5,5
6,5
5,5
7,0
morning
afternoon
evening

Looking at the non-intent graphs without calculating the averages first, it appears that levels on before day on S5(ni) are lower than on S3(ni) and S4(ni) making me wonder if that could have something to do with the holiday? Session S3(ni) was the session before the holiday, S4(ni) the first after holiday and S5(ni) after two weeks of working again so maybe(and this is pure speculation on my part) the lowering levels are stress related here?
Let's take a look at the tables:

LEH table(non-intent):

	lower	equal	higher
morning	XX	X	
afternoon			XXX
evening	X		XX

Overall average per day(non-intent):

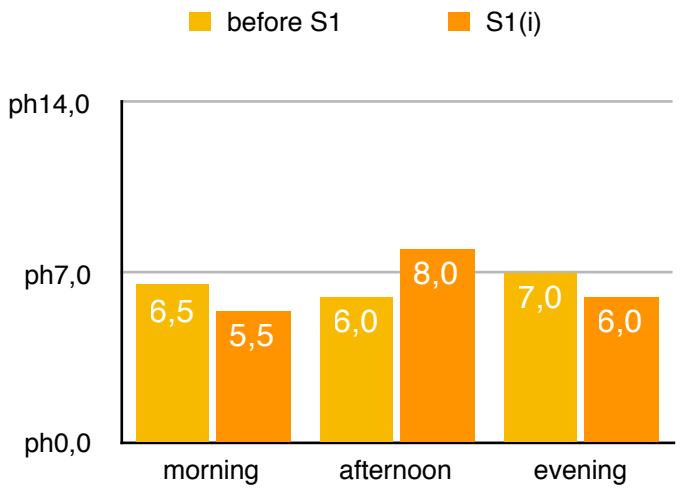
	before day	session day
S3(ni)	6,3	6,5
S4(ni)	6,5	6,5
S5(ni)	5,7	6,3

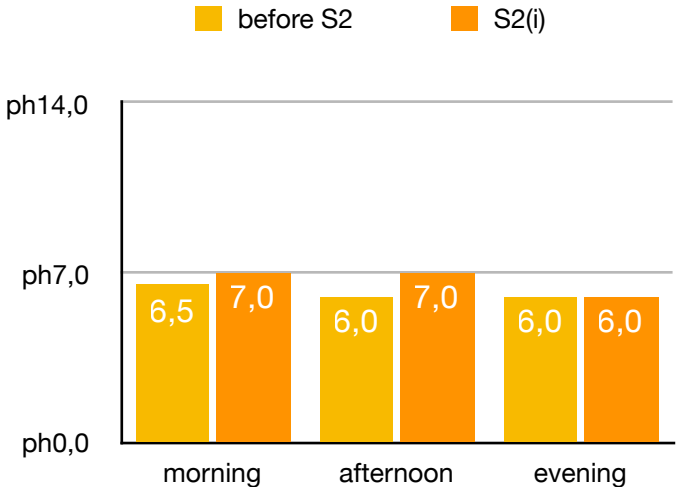
Overall average MAE (non-intent):

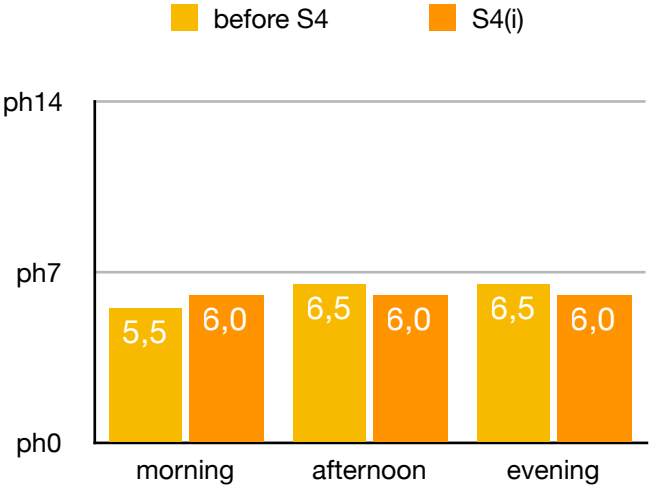
	Before day	session day
morning	6,5	6,0
afternoon	5,9	6,7
evening	6,2	6,7

Overall average difference per day on S3(ni) between before and session day is just 0,2, equal on S4(ni) and 0,6 on S5(ni).
In the MAE table you can almost see a mirroring movement between morning and afternoon, as on the before day the overall average level drops by 0,6 whereas on session day it rises by 0,7. Overall average morning levels cross over between morning and evening: before day starts 0.5 point higher and ends 0,5 points lower in the evening than on session days.

4.1.12 participant 9 analysis







Participant 9 was a 44 year old male with a vegetarian dietary pattern.
Intervals between sessions were more erratic here. 7 days between S1 and S2, 4 weeks and 6 days between S2 and S3, 6 days between S3 and S4, 7 days between S4 and S5 and 9 days between S5 and S6.
Other than the first 8,0 reading so far(afternoon S1(i)), which could very well be due to getting used to reading and comparing the litmus colours, nothing really stands out for me here.

LEH table (intent):

	lower	equal	higher
morning	X		XX
afternoon	X		XX
evening	XX	X	

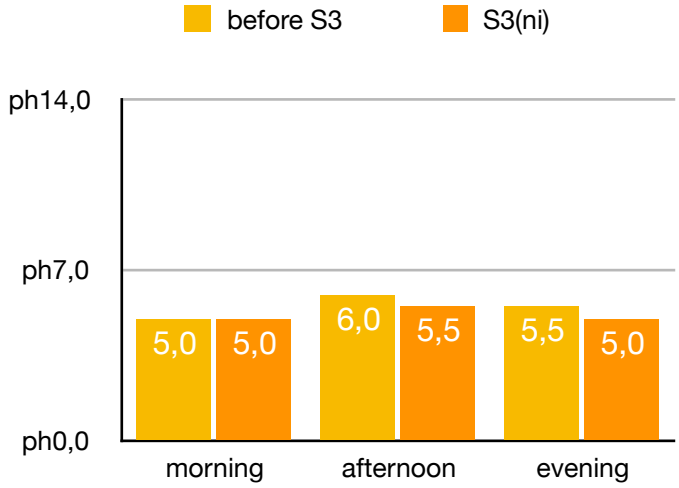
overall average per day (intent):

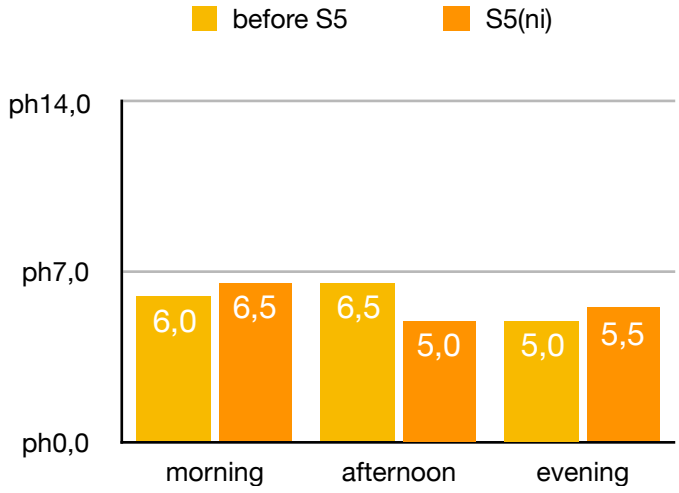
	before day	session day
S1(i)	6,5	6,5
S2(i)	6,2	6,7
S4(i)	6,2	6,0

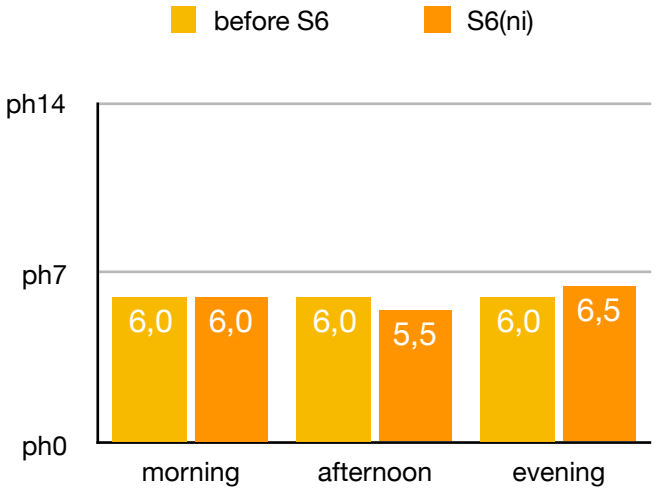
Overall average MAE(intent):

	before day	session day
morning	6,2	6,2
afternoon	6,2	7,0
evening	6,5	6,0

Session day average is higher on S2(i) and afternoon average in the MEA table but I think these numbers are flawed because of the afternoon reading in 1(i) being 8,0 which I consider an anomaly as compared to the other measurements (other graphs included).


before S3
S3(ni)
ph14,0
ph7,0
ph0,0
5,0
5,0
6,0
5,5
5,5
5,0
morning
afternoon
evening


before S5
S5(ni)
ph14,0
ph7,0
ph0,0
6,0
6,5
6,5
5,0
5,0
5,5
morning
afternoon
evening


before S6
S6(ni)
ph14
ph7
ph0
6,0
6,0
6,0
5,5
6,0
6,5
morning
afternoon
evening

At first glance the non-intent graphs look well balanced and smooth without remarkable deviations except for the before day in S6(ni) showing 6,0 for the whole day.

LEH table (ni):

	lower	equal	higher
morning		XX	X
afternoon	XXX		
evening	X		XX

Overal average per day(non-intent):

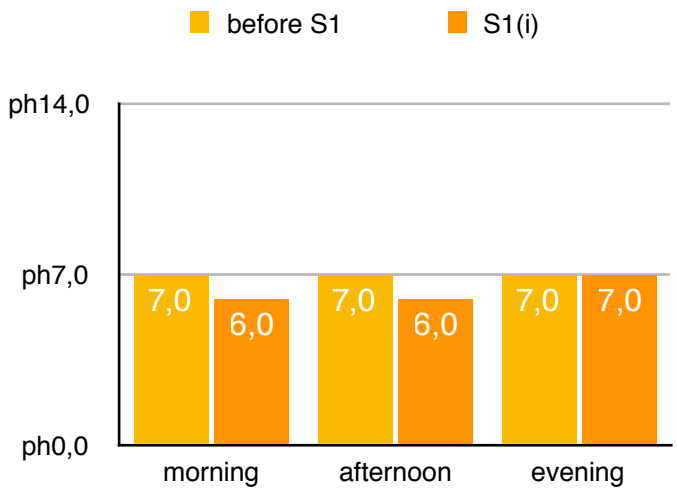
	before day	session day
S3(ni)	5,5	5,2
S5(ni)	5,8	5,7
S6(ni)	6,0	6,0

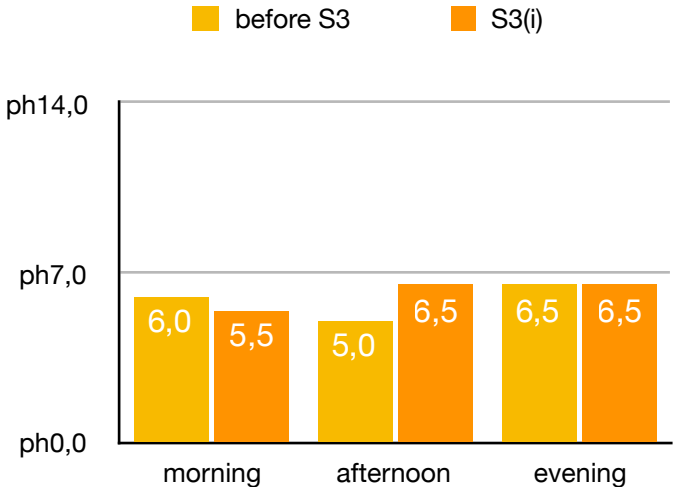
Overall average MAE(non-intent):

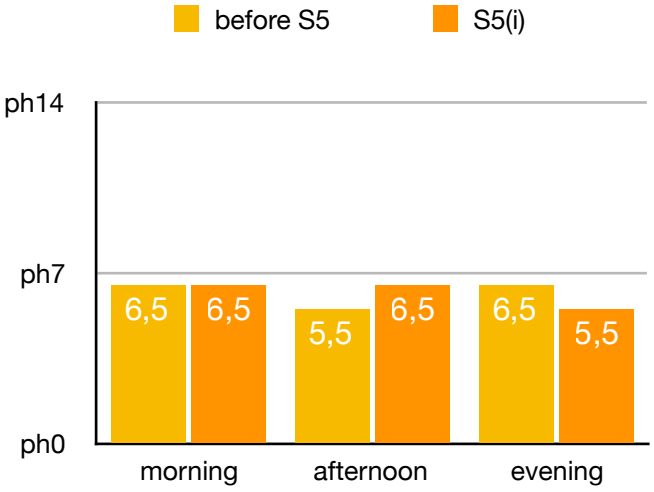
	before day	session day
morning	5,7	5,8
afternoon	6,2	5,3
evening	5,5	5,7

The LEH table shows the afternoon levels being lower 3 times out of 3 which is reflected in the MAE table, the overall average afternoon level being 0,9 lower on session day than on before day.

4.1.13 participant 10 analysis







Participant 10 was a 42 year old female with a vegetarian dietary pattern. Intervals between sessions were a bit more scattered due to family matters. There was a period of 17 days between S1 and S2, a period of 8 days between S2 and S3, a period of 6 weeks and 4 days between S3 and S4, a period of 8 days between S4 and S5 and a period of 4 days between S5 and S6.

LEH table(i):

	lower	equal	higher
morning	XX	X	
afternoon	X		XX
evening	X	XX	

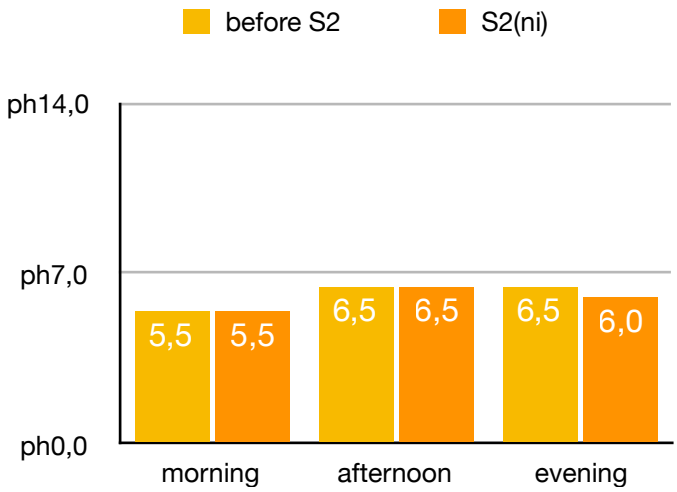
Overall average per day(intent):

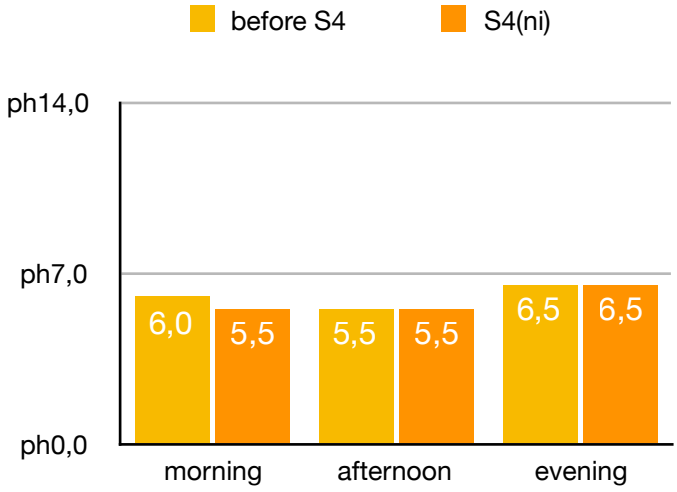
	before day	session day
S1(i)	7,0	6,3
S3(i)	5,8	6,2
S5(i)	6,2	6,2

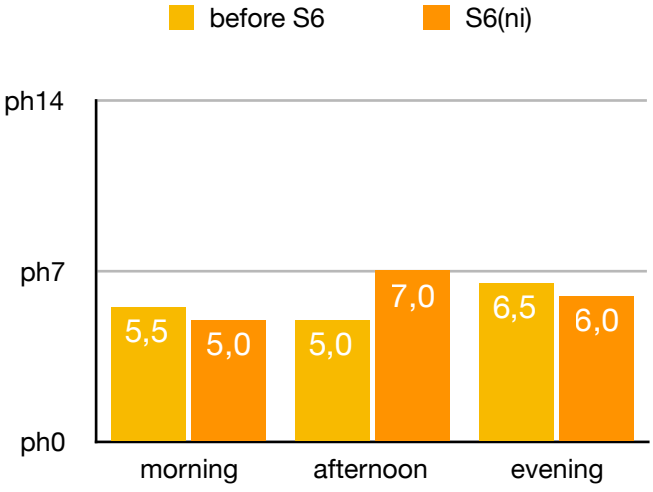
Overall average MAE(intent):

	before day	session day
morning	6,5	6,0
afternoon	5,8	6,3
evening	6,7	6,3

Here we see a steady 7,0 measurement throughout the before day of S1(i) which once again may well be caused by not being used to read/interpret the litmus colours yet.
The overall average MAE levels of the session days are much more close than on the before days.
So let’s take a look at the non-intent graphs.


before S2
S2(ni)
ph14,0
ph7,0
ph0,0
5,5
5,5
6,5
6,5
6,5
6,0
morning
afternoon
evening


before S4
S4(ni)
ph14,0
ph7,0
ph0,0
6,0
5,5
5,5
5,5
6,5
6,5
morning
afternoon
evening


before S6
S6(ni)
ph14
ph7
ph0
5,5
5,0
5,0
7,0
6,5
6,0
morning
afternoon
evening

The non-intent graphs of before and session days move smoothly together with one afternoon (S6) as an exception.

LEH table (non-intent):

	lower	equal	higher
morning	XX	X	
afternoon		XX	X
evening	XX	X	

Overall average per day(non-intent):

	before day	session day
S2(ni)	6,2	6,0
S4(ni)	6,0	5,8
S6(ni)	5.7	6,0

Overall average MAE(non-intent):

	before day	session day
morning	5,7	5,3
afternoon	5,7	6,3
evening	6,5	6,2

Here both the overall average tables do not give much information other than that the levels are closely packed together.
If you look at both sets of tables (intent and non-intent) you see there is not so much difference between them in the sense of levels being quite close together.
Of course the LEH tables are somewhat different but not enough to distinguish a pattern as far as I’m concerned.

4.1.14 non-touch group analysis

Even though there were a few readings that I found peculiar(as stated in above analyses), I didn't discard them in the making of the individual tables, which is reflected in the numbers adding up to 15 for morning, afternoon and evening readings in the combined LEH tables.

Combined LEH table non-touch/intent:

	lower	equal	higher
morning	9	2	4
afternoon	5	1	9
evening	5	6	4

Combined LEH table non-touch/non-intent:

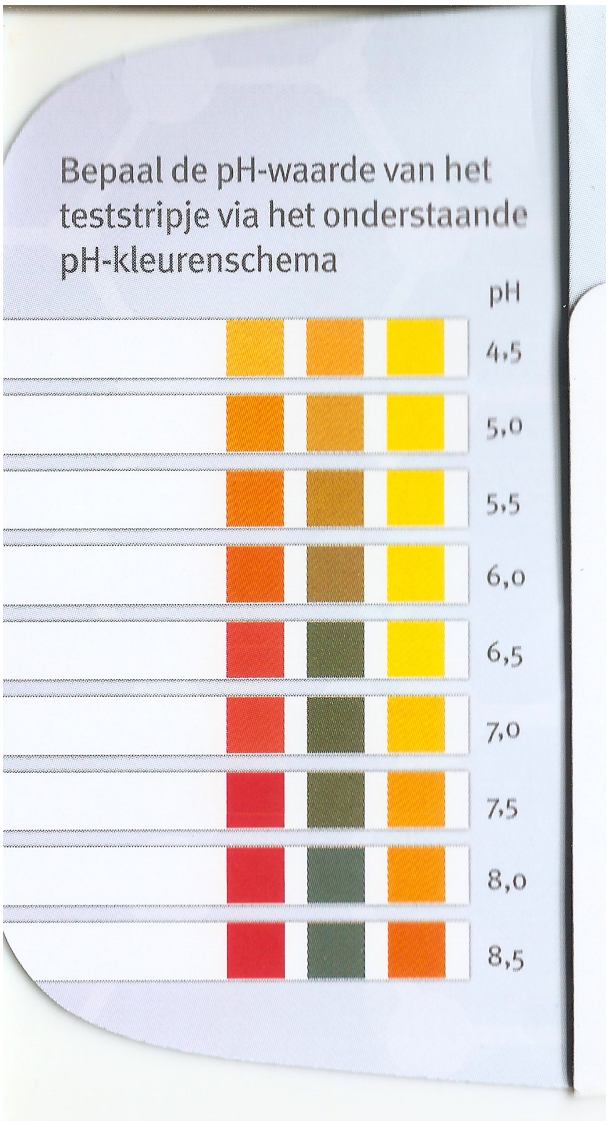
	lower	equal	higher
morning	6	6	3
afternoon	4	4	7
evening	6	4	5

Looking at the tables we see that the morning lower pattern that we noticed with the touch group pops up here as well. 15 times the mornings started lower on session days here- so exactly half of the time. Hmmm, if this would be stress related I'm either scary or people are just happy to see me (I hope for the latter of course!).
Looking at both tables separately and then specifically to the afternoons and evenings for those I consider to be under influence of the sessions, the afternoon levels are 4 times equal in the non-intent table versus 1 time in the intent table and this difference of 3 is the biggest at the same time. But when you combine afternoon and evening numbers(considering them both being influenced by the sessions) then you see that non-intent and intent are almost the same: both 10 times lower, intent 7 times equal vs 8 times for non-intent and intent 13 times higher vs 12 times for non-intent.
Afternoon intent is 9 vs 7 for non-intent so 1.5 points more than half (that being 7.5, coming from 5 times 3 graphs makes 15 comparisons divided by 2)for intent vs 0,5 below half for non-intent.
To be honest, I'm not really sure if that is a significant difference in the perspective of the other numbers which are fairly close together.
For me the LEH tables do not give an obvious sign that intent had an decisive influence on the outcome.

The other overall average tables, per day and MAE give me the same impression of not being clearly indicative of clear intent influence.
And then there is one other thing to consider. When I was analysing the touch group I combined both intent and non-intent because of the common parameter of touch and in that way I discovered that the afternoon levels were higher 13 times on session days than on before days. Now if I would consider the common parameter for the non touch group to be the act of lying comfortably and relaxed for about 20 minutes with a therapist opening and closing the sheets and leaving the room every now and then, then combining both LEH tables show that also here, just as with the mornings, the afternoon numbers are once again significantly more times higher than the other numbers- namely 16 times this time. So now we have 16(touch group) and 15(non-touch group) for the mornings, 13(touch group) and 16(non-touch group)for the afternoons.
Indeed these figures might as well be not random but apparently not in the sense of influence of either intent or touch.
Maybe the supposed stress of session day we saw in the mornings (lower pH levels) is counterbalanced by lying in a relaxed state of mind and body in the serene environment of the practice room(higher pH levels). For now I can only speculate.

4.2 discussion and conclusion

The question I posed in the preface of this paper actually consisted of two questions, namely the question of whether therapeutic intent is an aiding factor during a Bowen session and the question of whether its influence could be measured using urinary pH levels.
This question was founded in the hypothesis that therapeutic intent is an aiding factor in the successful application of Bowen therapy.
Even though the research did show that there was a consistent difference between before and session days in the morning and afternoon measurements this could not be explained by influence of intent since this appeared in both the intent and non-intent sessions of both the touch and non-touch group.
This means that the answer to the question about whether the influence of therapeutic intent during a Bowen session can be measured by means of urinary pH levels must be negative.
I could argue that the method of measuring wasn't really sophisticated enough. The litmus strips used showed 3 coloured squares and the cardboard wrapping containing them showed small graphs of possible outcomes belonging to specific pH levels after the colours on the litmus had been in contact with urine.The graphs on the cardboard wrapping only showed possible pH values of whole and half, making the measurements somewhat crude from the start as shown on the next page.


Bepaal de pH-waarde van het teststripje via het onderstaande pH-kleurenschema
pH
4,5
5,0
5,5
6,0
6,5
7,0
7,5
8,0
8,5

Several participants told me that often the outcome(colour change on the litmus strip) didn't match any of the given possibilities as for instance one square colour matched a certain graph whereas the next would fit another, so they were inclined to come up with a compromise making the measurement less accurate.
I'm not sure if a more sophisticated way of measuring pH levels would have given a different outcome altogether in relation to the research question.
With the many safeguards the body has in place to secure the average pH levels as described in the used literature, it stands to reason that detecting the effect of intent in urinary pH levels seems not really plausible unless it would be able to alter pH levels in such a way that breathing adjustment would not be sufficient to restore balance.
But at the same time it appears that something did happen on session days as opposed to the before days.
A possible explanation of the rising levels after the actual sessions(the afternoon measurements) might be a change in breathing pattern during the session. If the participants would either breathe faster or deeper than necessary for 20 minutes while lying down with the bodymind in a relaxed state, this could have altered the bloods pH by breathing out more CO2 than needed thus making the blood more alkaline.
Researchers tested blood samples from practitioners of the Wim Hof method and found that their blood pH remained alkaline for more than an hour after they performed their breathing exercise(Hof, 2015, p8) which is a form of controlled hyperventilation(expelling more CO2 than needed).

Apart from the use of urinary pH levels, some people might argue that the use of intent as a tool of research is questionable since you cannot for instance tell the amount of intent used, or be sure that there is no intent at all during non-intent sessions.
Indeed there is no measure for the amount of used intent other than the experience and self knowledge of the therapist applying it.
Especially during the non-intent sessions with the touch group you could say that it is not possible to shut down intent. I agree in the sense that performing a move in itself has the intention of doing just that, but in my opinion the intentional impulse of just performing a move is of a different order than when this move is combined with therapeutic intent, as these are two different mindstreams so to speak.
And it is this form of therapeutic intent which I think can be blocked and therefore used in the set up I created for this research.
The literature about psi research, especially the studies of DMILS show that intent and its influence on a receiving person can be studied very well even by scientific standards so by now I do not only think but know that intent can be blocked or at least redirected to such an extent that there is no measurable influence anymore.

The literature about body wide communication, quantum coherence, signal amplification and stochastic resonance for me gives a clear biophysical basis for making these phenomena possible.
Even though most research I came across uses either skin conductance, ECG or fMRI, it stands to reason, given the fact that the body always responds as a whole, that the influence of intent extends beyond the skin, heart or brain.
Therefore I dare say the hypothesis that therapeutic intent is an aiding factor in the successful application of Bowen therapy still stands based ,on personal experiences and the literature I studied.

Then there were some collateral fun facts worth mentioning.
For me personally it was very interesting to experience what happened in my mindstream, as the Buddhists would put it, when I tried to actively disengage and disturb intent during the non intent sessions in the touch group.
The first time it really took a lot of effort to not engage with the person on the treatment table, it almost felt like being torn apart! Especially during the first few moves I suddenly realised how strong the feedback loop is between the focused, intentional mind and the tactile information coming in from the hands during all phases of a move so apparently I had to block both my mind's intention and this particular feedback loop as well.
Apparently being there in the moment with your client with full attention and intent on their well-being when performing a move happens automatically, together with the aforementioned tactile feedback loop, but you only start noticing this process once you actively try to disturb it.
When in the non touch group I was performing a non intent session, participants were more inclined to start chatting as opposed to during the intent session.
Also in the non touch group I got feedback of feeling various types of movement inside the body after the intent sessions on several occasions, whereas after the non intent sessions I didn't get such feedback.

I somehow always knew what session I was supposed to give the moment my hand reached into the envelope or at least in the order of 9 out of 10(a wholly different area of psi I presume).
All in all setting up the research and writing this paper was a wonderful experience leaving me once again in awe about the web of life, reality and consciousness.
Before I leave you I want to share a few quotes from well known physicists that I liked in this context, as icing on the cake so to speak.

“What we observe is not nature itself, but nature exposed to our method of questioning”.
Werner Heisenberg

“Everything we call real is made of things that cannot be regarded as real”.
Niels Bohr

“We have no idea how the world works, all we do is build up models that seem to prove how our theories work”.
Steven Hawking

“There is no matter as such. All matter originates and exists only by virtue of a force which brings the particles of an atom to vibration and holds this …system of the atom together. We must assume behind this force the existence of a conscious and intelligent mind. This mind is the matrix of all matter. Nobody has the slightest idea of how anything material can be conscious and…nobody really knows what exactly consciousness is”.
Max Planck

“The first gulp from the glass of natural sciences will turn you into an atheist, but at the bottom of the glass God is waiting for you”.
Werner Heisenberg

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